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I HAD POLIO

MARGERY ARBAUGH HALFORD

I had been lying flat on my back for several hours with a high temperature and considerable pain when the laboratory confirmed my doctor's tentative diagnosis of poliomyelitis. I had given our two and half year old daughter to neighbors to care for before I went to the hospital and I could only hope the people watching for my husband's return from an out-of-town business trip would locate him before he reached the empty apartment. Our nearest relatives were 1,500 miles away.

Gradually I realized paralysis was taking my whole body in its grip, but all I felt was revulsion for the loathesome disease, and real fear didn't strike me until my hands were afflicted too. My hands were doubly precious to me for I had done much concert piano work.

When I was completely paralyzed below the neck and it was apparent my diaphragm was becoming paralyzed too, I was panic stricken. The few minutes required to put me in the tank respirator seemed an endless eternity of suffocation. The relief in respiratory aid was profound.

Mucus began to develop. So conscious was I of the imminence of death each time I choked and succeeded in getting the mucus either up or down as the nurse directed, that my one prayer was to be allowed to raise Sandy, our daughter. However, I was not alarmed at the thought of death itself, and was completely happy to go, if wanted.

When my condition was no longer considered critical, the tank respirator was opened periodically so I could try to breathe alone. All my other fears were negligible compared to this unspeakable sensation which was repeated over and over again for weeks. It was not until I could breathe alone for some five minutes that this fear lessened appreciably.

Soon passive physical therapy was started and then I was subjected to a program designed to wean me from assisted breathing. This was in a general hospital which lacked any type of respiratory aid other than the tank, so I was merely taken out of the tank and placed on a bed for longer periods each day. Paralyzed breathing muscles fatigue like any other muscles and I was tired all the time, ate little, and slept poorly. I felt unreasonably mistreated because I didn't think such a tiring regime was good, and I lived for the day the National Foundation would complete plans to transfer me to one of their respiratory centers. I felt positive I would get well there and that my treatment would be radically different.

When the plans were completed and I was in the Respirator Center, it was as I imagined heaven would be. A sensible program of rest and less unaided breathing, i.e., of use of the rocking bed and the chest respirator, and association with roommates my age, combined to make me feel well and happy again. I was reconciled to spending a few more months in a hospital.

I had been there about a month before I fully realized that I might never *completely* recover. When I was told I might expect to be able to sit up in a wheel chair, breathe alone most of the day and (with the aid of slings and splints) have some use of my hands and arms, I realized I was no different from most of the other patients.

I was more fortunate than some, less so than others, but I would have to begin immediately to plan for a future that would include respiratory equipment, a wheel chair, and very little activity. However chilling and disagreeable these facts, they were a permanent part of the future and I had no choice but to learn to live with them. I might have dissolved in tears of self pity but could not do so before roommates who had considerably more involvement than I.

As soon as I could sit comfortably in a chair at a 45 degree angle, using the chest respirator, I

was allowed to begin occupational therapy. I was eager to start using my hands which felt quite strong to me. But the initial experience was more frustrating than anything else. Ten minutes' try-out with splints using a few fingers on the electric typewriter with my therapist supporting both wrist and elbow was completely exhausting.

However, my vital capacity slowly increased and as it did so I developed some degree of proficiency on the typewriter with the assistance of slings and opponens splints. As I graduated to sitting without the respirator, then sitting straighter and straighter, I was able to add stencil painting with a minimum of assistance. Eventually I added writing in a wobbly but legible hand and feeding myself to my growing list of activities of daily living. Always I was annoyed that so much of my limited strength was used merely in breathing, even when I used the chest respirator.

I was becoming reconciled, although not very happily, to beginning every activity in a new way. My final great achievement was hand sewing a hem in a stenciled pinafore for Sandy.

The time for going home was near. Now I became more acutely aware of the need for readjusting to the real world. In the Center the abnormal was normal, and valuable as this atmosphere had been, I knew it would reverse abruptly the instant the hospital door closed behind me.

The pleasant trips which I had been able to make as a patient had been accomplished by ambulance and attended by therapists or nurses. Now I was on my own with no professionals to make arrangements for me. We had moved our home to the city where the Center was located which meant I had left all my friends, and I felt that every person I met would be a stranger.

The National Foundation helped to provide an attendant who, before I left the Center, was trained in my nursing and physical medicine procedures. At home the attendant and I arranged a suitable program of daily routines. Sandy readjusted to a home life with a handicapped mother with little difficulty and we spent many happy hours together. My husband was pleased to have his family reunited and I was thankful to have his supporting strength on which to lean. Living around a handicap was a nuisance but by no means an insurmountable obstacle to establishing a happy home.

It took time and experimentation to devise ways and means for doing things. For example, I had difficulty in returning the carriage on the typewriter, in pushing down the control on the mangle iron, and in reaching things on my work area when I baked a cake. I found my backscratcher a handy tool for assisting in these activities. It was useful, too, in helping my left hand to push my right arm where I needed it as I gingerly learned to use the sewing machine, and it could smack a little girl's hands when she decided that her mother could not enforce a "No, no."

We had two major problems: getting in and out of bed, and managing a tub bath. The first was solved with a block and tackle lift running over my bed on a monorail attached to the ceiling. The problem of the tub bath (instead of the sponge bath) was met with a temporary solution. We bought a collapsible rubber tub, placed it on a platform beside my rocking bed, and used the lift to get me in and out. It was something of a nuisance, as we had to fill it with a garden hose, but it worked. Later, when our own house had a bathroom large enough to accommodate a wheel chair, we had another lift installed above the tub and used it in the conventional way.

It took two years before I could really play the piano again. Ultimately I used taller, less flexible sling posts with longer horizontal arms than I had originally had, and these were free to rotate in their sockets; one soft sling on the left arm, a weighted balanced feeder sling on the right arm; a lead weight combined with thumb bar to straighten the great joint and hold it in position while at the same time it supplied striking force and kept the left forearm from supinating. A high heeled slipper gave sufficient leverage for me to use the loosened and weighted pedal. I could play only certain close position chords, and these slowly, so I selected my music with great care. The triumph was a recital of fine music, laboriously studied, musically correct and a profound satisfaction to me and my friends. That year I returned to piano teaching, my former profession.

Now, several years and many gadgets later, I have proved that few problems cannot either be overcome, sidestepped, or solved in a possibly complicated but workable way. For a long time it bothered me greatly that it took so much arranging before I could do anything, but I have pushed this concern into the background to some degree. However, I strip away gadgets and assistive devices wherever and whenever possible as my need for them decreases. I no longer require a right hand opponens splint. I only use the left one if absolutely necessary, and I have dispensed with the left arm sling when playing and use only a soft one for the right arm. Because assistive devices are distracting to

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SOME OBSERVATIONS ON THE PSYCHOLOGICAL ROLES OF THE OCCUPATIONAL THERAPIST

LEE MEYERSON, Ph.D.*

The occupational therapist plays many roles. Some of these roles are formalized and well structured as when the therapist guides diversional or functional activities. Other roles, such as the vivacious, young female visitor or the mature, understanding mother or father figure are more subtle, intimate and may have uniquely personal meanings to patients. Finally, the occupational therapist, like all hospital personnel, constantly plays a series of pervasive, relatively unstructured, psychological roles which he may or may not recognize. He may, at various times, be a scope increaser, a prodder, a dominator, a fighter against injustice, or a missionary to unfortunate people. Sometimes his psychological roles may be played consciously in the interest of deliberately selected therapeutic goals. More frequently, however, they are unconscious manifestations of the therapist's personality and sense of values. The roles seem so right, so natural, and so whole heartedly supported by the hospital environment, that they may be acted out without conscious awareness by the therapist of what he is doing. Other possible roles, because they seem inappropriate—actually unthinkable—may never be considered, examined or tested for therapeutic worth.

In part, we are confronted here with a basic problem for occupational therapy as a profession and as a science. No one who has seen a good occupational therapy program in action can doubt that it seems to result in great help for some patients, and some help for many. There appears, however, to be no rigorous and comprehensive theory which will explain who is helped, how, by what, or why; and there is little objective evidence that occupational therapy is actually effective. To be sure, much of the world's work is based upon "common sense," but the history of science suggests that untested impressions are often wrong and that the most useful knowledge is not simply that something "works" but how it works and why.

Two examples may make this argument clearer. In 19th Century France, infants fed cow's milk tended to sicken and die much more frequently than infants who were fed a mildly alcoholic grape drink. It was believed, therefore, that wine was a more healthful beverage for children than milk. As every nutritionist knows today, that is not true, although in a pragmatic sense, it "worked." It seemed to be true only because wine carries fewer germs harmful to man than unpasteurized milk. Before the discovery of the relevant variable, human action was limited to a choice of the lesser evil. Clearly this is not as useful as being able to select a positively healthful beverage.

Similarly, in 19th Century America, farm families allowed cheese to become moldy on the back porch. They used to apply this greenish mold to cuts and wounds in the belief that it facilitated healing. This belief, more frequently than not, probably was justified, but there is clearly no comparison between the usefulness of this knowledge and the effectiveness of modern penicillin.

Occupational therapy, to an outside observer, appears to be in the wine and green mold stage of pre-scientific effectiveness. It may be pragmatically helpful in the same sense that these remedies were, but it appears to lack the systematic observation and experimentation that lead to explanatory principles. It "works" sometimes with dramatic success; but sometimes, perhaps because we do not know the relevant variables, it works less well; and sometimes, if I may be forgiven the heresy, perhaps it may be administered harmfully.

The lack of an adequate rationale and the lack of objective evidence for the value of occupational therapy reflect temporary conditions, I feel sure. In the light of the newness of the discipline, the relatively few people in the field and the daily demand for what the occupational therapist can contribute, it is an understandable situation. The time seems ripe, however, for some attempts to examine rigorously and define precisely the conditions under which the various activities of occupational therapy are beneficial. This seemingly digressive discussion may serve as a background for the speculation that *some* of what *some* occupational therapists do in one kind of setting—the hospital for chronic diseases, the respiratory center, the cerebral palsy clinic or any health institution where the patients are unlikely to regain physical normality—may be unhelpful at best and psychologically harmful at worst. It is a speculation that this unhelpfulness, when it occurs, is primarily a function of the adoption by the therapist of an inappropriate psychological role. This, in turn, may be a function of dependence upon a pragmatic orientation without the scientific principles which alone give men some degree of mastery over nature.

Some of the roots of this inappropriate role are readily visible. We may begin with the observation that occupational therapy is the handmaiden of medicine. The training of occupa-

*Department of Psychology, University of Houston, and Baylor University College of Medicine

tional therapists, the content of their studies and the subsequent direction of their work is directly under the supervision of physicians. It is understandable and praiseworthy, therefore, that they have absorbed the reverence of medicine for human life. Surely, to take an extreme example, it is a sobering and exalting thing to watch a team of physicians try desperately, with all the energy and with every resource at their command, to keep alive the spark of life in a patient whom they know cannot last more than a short time longer.

This dedication, however, carries with it certain implicit assumptions for diseases and disorders that are less than life threatening. The basic ones are that nothing is more important than that the patient should become completely well, that no effort is too great to attain this end, and that hope for full physical recovery should never be given up so long as life remains. Practically, if full recovery seems unlikely, the goal becomes one of attempting to restore the patient as closely as possible to physical normality. Each advance toward this goal, no matter how small, is important and should be fostered with every effort possible. Anything and everything else is less important and should be subordinated to the goal of *physical* recovery.

In this task, there is the accompanying demand that the patient himself should strive to get well; that is, he should be willing to make the effort and endure the pain that may be necessary in trying to improve affected physical functions. Nothing seems more threatening and demoralizing to therapists than a patient who either actually or seemingly does not want to improve.

In the process of promoting physical recovery, aside from keeping the patient as comfortable as possible, the physician may pay little attention to psychological conditions. First, there may be the erroneous belief that as physical recovery occurs, psychological recovery will inevitably occur also; and second, patients' reports are notoriously unreliable guides to physical improvement. For these reasons the physician is apt to pay more attention to things he can measure such as gain in weight, the size of a tumor, the degree of motion in a limb and the results of laboratory tests. He may tend to attribute less importance to whether the patient feels better, looks better, or seems able to get around better.

The occupational therapist is one of the physicians' deputies here. It is partly his responsibility to encourage the patient to keep trying when he wants to stop, to raise his morale when he feels discouraged, and ensure that he keeps his eye on the main goal of getting well. It is understood that illness and disability are "bad" and one must fight against them. In cases of acute illness, the occupational therapist may be clearly a helper to the patient and at the same time embody social demands that the ill person should make every effort to regain normal physical functioning.

What happens, however, when an illness becomes chronic and a disability becomes permanent? What happens when the goal of physical normality is neither attainable or approachable? Does the therapist change his psychological role in the direction of the reality situation or does he persist in upholding to the patient the high value of the physical activities which are now difficult or impossible for him to attain? Does the therapist remain "defect-oriented" so that he sees primarily a damaged person who cannot really be fixed up but who, nevertheless, must try to become "as normal as possible?" Does he consider the patient a "quitter" if he tries to place a lesser value on physical activity and a higher value on other activity?

It is sometimes horrifying to the psychologist to observe the amount of effort that is expended by therapists and the "stick and carrot" pressures imposed on patients to get them to try to breathe outside of a respirator a few additional minutes, to be able to walk a few steps more, to stand upright a few minutes longer, to be able to move an arm a few inches farther.

These things may be right and "good" when physical recovery is possible or when small physical gains may be directly utilized in activities that are meaningful to the patient; e.g., to be able to turn the pages of a book, to take the few steps to the bathroom, to be able to button clothing. They may be inappropriate, however, when the disability is relatively irreducible. To the degree that they encourage the patient to hope for an unlikely recovery and to the degree they prevent the patient from making an adjustment to permanent disability, they may be considered harmful. For many of the permanently, physically disabled there is neither need nor wisdom in striving toward "normality."

It may be hypothesized that one of the greatest needs for chronically or permanently disabled persons is a change in the value system of both their therapists and themselves. Perhaps in these cases it is not obtaining limited physical improvement which is important now, but rather it is psychological adjustment. If this is true, physical improvement is no longer necessarily "good," and the other implicit assumptions of medical practice do not necessarily hold. Paradoxically, it appears that a therapist may greatly assist the adjustment and greatly increase the freedom of a permanently disabled person by encouraging

him to accept physical restrictions. For the paralyzed post-polio, for some of the cerebral palsied and similar cases, acceptance of the "restrictions" of a wheel chair as a permanent part of life may be far more liberating than the "freedom" to strive for small physical gains which may or may not transfer to functional use.

This argument is just a specific way of stating a psychological truth: For good mental health, it is essential that the aspirations and the abilities of a person be compatible. It can be stated categorically that urging or encouraging a person to aspire to goals that are unlikely to be reached is not helpful therapeutic activity. It is a harmful, malignant process.

If it is true that mental health is approached as a person is able to place his highest values on what he has got or can expect to attain and is able to place lower or neutral values on what he does not have or cannot attain, then the appropriate psychological role of the therapist in chronic disability cases is clear: It is to help reduce the importance of the activities for which the patient does not have the physical tools and to enlarge the scope of activities for which physique is not important. It is part of the therapist's role to *deny* with the patient that physical normality is either critical or decisive for making a judgment of the worth of a person, to agree with him that disabled persons are "just as good" as non-disabled persons, and to encourage him to strive in areas where success is likely to be attained.

Is this defeatism? It is evident that most of us adopt this kind of psychological behavior for ourselves. Most of us learn early in life that many others are stronger, brighter, prettier, wealthier, more talented, more socially prominent, or what not than we are. We do not constantly bemoan our fate that the good Lord has not seen fit to endow us with more favorable attributes, nor do we try to make up for our deficiencies. We do, to the degree that we are mentally healthy, enjoy and make the most of what we have got. We do not ordinarily keep striving for goals that we are unlikely to reach.

Theoretically, for example, it is possible for every American to become President, but few men and practically no women aspire to this position. Theoretically, it is possible for everyone to become wealthy, but few of us strive for it to the degree that we devote our lives to making money—other things are more important.

Similarly, if a person is unsuccessful as an insurance salesman but seems to like mechanics, we may readily urge him to stop trying to be a salesman and become a plumber. In this and similar situations we not only allow retreat, but we encourage it when success is not readily attainable.

Most of us will agree that it is often wise to withdraw from a losing game. It protects us against the insidious effects of repeated failure, and it reduces the fruitless expenditure of time and effort. When we do not compete, surely we cannot win, but neither are we subjected to the anxieties and humiliations of unsuccessful competition. When the odds seem too great, we all try to protect ourselves by not competing. The person who persists needlessly against impossible odds is more often seen as an eccentric or a damnfool than a person to be admired. This is healthy behavior. Psychopathology enters when a person is faced with a situation that is probably impossible for him to solve, and yet he feels or is induced to feel that he must strive to solve it. Is the latter the situation created for the permanently physically handicapped by some therapists?

It is not expected that this kind of analysis will meet with ready assent from those who have interjected the assumptions of the healing arts. It amounts to denial of a value system in which the body and physical normality are of major and decisive importance. It seems to require agreement that physically normal people are not really better people than the physically handicapped. It seems to require that a disabled person sometimes be encouraged to do less physically than he could do with intensive effort. It denies that persistence is always a good thing. How could anyone agree with statements that are so patently outrageous. Yet consider the problem in other contexts.

Is it "better" to be rich or poor? Obviously, other things being equal, it is better to be rich. We know, however, that there are many other important values in the world besides wealth, and we know that other things are not equal. Hence, it is an easy conclusion that rich people, as people, are not better than poor people. Moreover, other values may be far more decisive than wealth for some individuals so that they decline to strive for it. We may say, for example, that being a physician or an occupational therapist and helping ill people get well is "better" than trying to get rich.

Similarly, is it "better" to be a man or woman? In some culture, this is not a sensible question. There is an ancient Hebrew prayer that runs, "Thank you God for making me a man and not a woman." Among many African and Asian groups, women in their own eyes and in the eyes of men, are devalued. Women, as people, are seen to be less worthy and less valuable than men. In Monaco, the female child of Princess Grace was given a 21 gun salute. A male child would have received a 101 gun salute.

Feelings of unworthiness, based on physical differences, may be a problem for some unadjusted women in our culture, but by and large, it is increasingly seen that men and women are different but just as good as each other. Where women are devalued, it is not because it is natural or right for them to be inferior, but because social prejudices keep them in inferior roles. In any event, the person has no choice here so far as fact is concerned. If fate has made one a woman, that is something that cannot be changed. If social custom permits greater rewards and privileges to men, that is a form of social injustice that should be combated, but it does not require that women should try to better their lot by behaving as much like men as possible.

The same kind of reasoning can be applied to the question, "Is it better to be permanently disabled or physically normal?" Other things being equal, it is clearly better to be physically normal, but physical normality is only one value, and other things are not equal. If physical normality cannot be attained—and in the present state of our knowledge, often it cannot—it is just as reasonable for the handicapped not to strive for physical normality as it is for women not to strive to be men. If a person must choose between devoting his day to medical therapy with only minimal possible gains or accepting a wheel chair as a place where other activities can be pursued; i.e., if other activities which conflict with attempts to improve physical abilities are valued more highly, it is just as reasonable not to strive for physical normality as it is not to strive for wealth. Moreover, if disabled people are seen as less worthy and less valuable than physically normal people, it is not because this judgement is natural and right, but because many people in our culture may be maladjusted with respect to physical disability.

Many therapists have recognized this situation, at least verbally, by contending that the first step on the road to rehabilitation is to "accept" the disability. It is evident, however, that often we do not really mean this. For example, if we say to a college professor, "Accept the fact that you are not rich," we do not mean that he should leave teaching and get a job in industry where he can earn some real money. We usually mean that in the light of other values that are open for him for a happy, productive life, being rich is something that does not really matter. Wealth is not really an important criterion with which to judge a person. Similarly, if we say to a woman, "Accept the fact that you are female," we usually do not mean either that she should accept as natural a position of inferiority to men or that she should try to behave "as if" she were a man.

When we *say* "accept a disability" however, the situation is markedly different. Usually we *mean* the person should recognize it as a fact but should not accept it. Instead, he should use the recognition as a basis for striving against it. It turns out to be an admonition to the person to use all of the energy and power at his command to overcome the disability; to become as much like a physically normal person and to behave as much like a physically normal person as possible even though he may never really be able to achieve this goal. We do not mean, as we do mean in other contexts, that disability is not important. We do not mean that in the light of other, non-physical values and goals that are open to the disabled for happy and productive lives, disability really does not matter.

Yet, if we are to be consistent and psychologically helpful, perhaps the latter is what we must say. Perhaps the role of the therapist with a permanently disabled patient who cannot walk should not be to act as a detached super-ego urging the person to try harder and to compensate. Rather, perhaps the role of the therapist should be that of the supporting voice strengthening the patient's sense of reality; reinforcing his sense of personal worth and emphasizing that he need not deny himself; saying in effect, "It really does not matter if you cannot walk." This does not mean that the disabled person should not improve his physical abilities as much as he can any more than we mean that a college professor should not try to make money if he can. It means only that physical normality is not really an important criterion upon which to judge the worth of a person. One need not strive with might and main to attain it, nor is it necessary to judge oneself by it. Other more accessible and equally worthy values may be of greater importance and appropriateness.

* * * *

To the Editor:

The attached article, adapted from a talk made to the Texas Occupational Therapy Association in 1956, is somewhat controversial. It would not be surprising, therefore, if you received a number of protesting letters pointing out just how erroneous are the ideas that have been presented. In part, this may be a gratifying development. If it starts some occupational therapists thinking about the roles and activities that are appropriate for different kinds of patients in different kinds of situations, I shall feel well rewarded for having written it. In part, however, I should like to forestall some irrelevant criticism. In all likelihood, the most frequent comment will be that I have neglected the fact that we do not really know when a disability is permanent, and we do not know when further effort is unavailing. I prepared some material indicating why I believe these factors are not critical to the argument. Unfortunately, however, space limitations have prevented its inclusion.

Lee Meyerson.
(Signed)

ORTHETICS IN POLIOMYELITIS

ROSE M. ELLIOTT, O.T.R.*

In the rehabilitation of the patient with poliomyelitis, the type of orthesis prescribed may vary depending upon: (1) the time from onset, (2) the severity and distribution of the involvement, (3) the amount of deformity or contracture present.

Depending upon the needs of the individual, this apparatus can: (1) protest and support weak muscle groups, (2) assist and contribute to gain of strength and coordination, (3) mobilize contractures, (4) substitute for loss of muscle power, (5) increase the independence of the patient.

The protection of the weak muscle groups is especially important in the early phases of treatment. A position of rest for the involved muscle, in which the part is supported so that the origin and insertion are brought closer, will aid the recovery of the muscle and help prevent deformity. Faulty positioning which would put the weak muscle on a stretch may be caused by: (1) the pull of gravity or the weight of the body part, (2) imbalance or pull of stronger antagonists, (3) inadequate support in bed or chair.

Static supports may be adequate for the protection of involved muscles and the positioning of parts, but *assistive apparatus* allowing some motion can contribute to gain of strength, range, and coordination. The sum of the assistance plus the power of the weak muscle should be sufficient to perform the motion without undue fatigue. Supervision is necessary to see that the pattern of motion is coordinate and that the weak muscle is participating. Too much assistance may only produce passive motion with no gain in strength, and too little may lead to incoordination with substitution of the stronger muscles.

If contractures are present, *mobilization to increase passive range* is usually indicated. At times, some tendon tightness is preserved intentionally to substitute for loss of muscle power, or to give some stability to an otherwise flail part. Manual mobilization may suffice to attain a functional range of motion, but if tightness persists, a special orthesis may be prescribed. This can exert a gradual force and be applied over longer periods of time. The apparatus may employ the use of gravity, springs, elastics, adjustable straps, or weights and pulleys.

When there is insufficient return of muscle power for the functioning of a part, an orthesis may be prescribed *as a substitute,* or for the transference of the power of another muscle group.

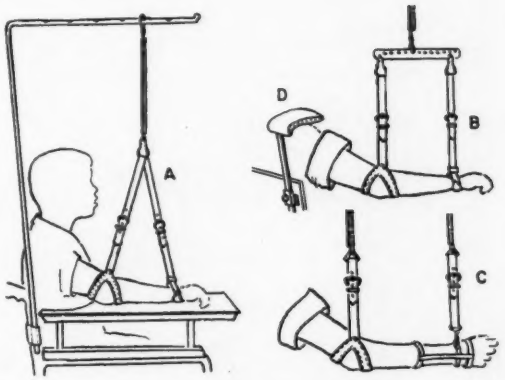

Figure 1

In considering apparatus which may be indicated in one or more of the above conditions, there are further qualifications to be noted. The orthesis should be practical to construct by a certified orthotist, durable, easy to apply, comfortable to wear, neat in appearance, easy to keep clean, and should allow the patient to make use of available muscle strength. It should not be more extensive than necessary, should not be too expensive, or take too long to make. The selection of material should be such that it is possible to make adjustments, modifications, or repairs. Especially in planning a home program, a practical point of view must be maintained. Even though there is some residual weakness, hand or arm ortheses may not always be indicated, especially if their use does not increase the function or independence of the patient.

To achieve *independence* in the activities of daily living, a knowledge of available self-help articles and the trial and practice in their use is important. Ingenious therapists and interested patients have devised many ways of caring for these everyday needs. With the increased emphasis on rehabilitation and the obvious need for many of these items, the sources of supply have greatly increased.

The *overhead sling* (Fig. 1A) consists of leather forearm and arm supports suspended by a coil spring[1] or elastic[2]. The tension in the spring depends upon the size of wire and diameter of the coil, while the tension of the elastic varies with the width and thickness used. In either material, the amount of extension is directly pro-

*Chief occupational therapist, Gonzales Warm Springs Foundation, Texas.

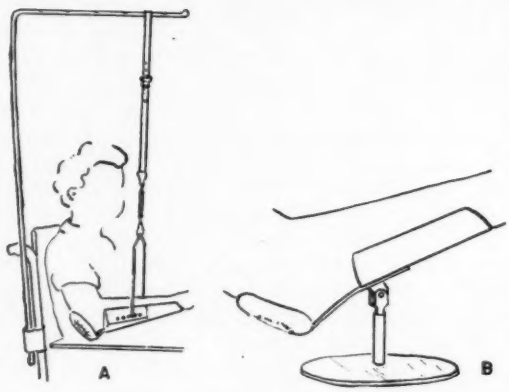

Figure 2

portional to the length. This suspension sling provides *support* to the shoulder, arm and forearm, and *assistance* to both horizontal and vertical motion of the arm and forearm when the patient is sitting in a chair or bed. This forearm support is important in the protection of the shoulder as it prevents undue inward rotation of the humerus. A horizontal lapboard or table with a cut-out is adjusted in height to each individual and prevents too much depression in the slings. Preferably 70 to 80 degrees of flexion and abduction of the arm in the sling is indicated for weakness in the deltoid group. This is in combination with a high lapboard about an inch or so below the elbow. The placement of the sling support on the rod may be varied to favor the weaker muscles and to maintain good posture and alignment. The rod itself may be positioned in or out to further adjust the position of the sling, and in a few cases, a small amount of free motion of the rod is desirable. In case of weakness of the muscles of the shoulder girdle, observation of the position of the scapula with the arm in various positions should be made and some compromise may have to be made in the sling height. Also the optimum sling height for deltoid weakness may not be possible if there is tightness in the arm adductors. Usually, overhead suspension slings are not prescribed until there is some passive range in the adductors. The slings can then be positioned to maintain this range.

The height of the overhead rod should also be considered. On a wheel chair, stainless steel rods allowing a sling length of about 36 inches are not too high for convenience. Usually, a long rod is preferable to a shorter one for two reasons: (1) The higher support provides an easier and wider range of horizontal motion. A lower support, like a short pendulum, has a small curved arc of motion. (2) A longer spring will give more range of assistance in upward motions of the arm. The overhead rods may be constructed to fold down against the back of the chair, so that they do not need to be removed when the chair is put in a car. They may also be made with a swivel joint so that their position is vertical if the chair back is in a semi-reclining position.

The patient needs supervision in the use of overhead slings. He must be taught correct patterns of motion and must not be expected to attempt activities beyond his power or endurance. One faulty pattern of motion sometimes encountered is a combination of raising the shoulder and adducting the arm in an effort to get the hand to the mouth. The attachment of an *adjustable padded bar* (Fig. 1D) on the chair back just over the acromion process can serve as a reminder to prevent "hiking" of the shoulder. If the muscles of shoulder depression are weak, the bar can give them assistance and prevent malalignment of the scapula. This combination can be used to gradually mobilize tight arm adductors.

If the weakness or imbalance of the scapular muscles is the more important consideration, a *lapboard* only and no overhead slings may be indicated. The height is determined by trial positions and the patient instructed as to what motions should be attempted.

If the involvement is moderately severe and only a little motion is possible in the conventional overhead sling, a modification made by attaching the leather straps to an *adjustable counterbalance sling bar* (Fig. 1B) will give more assistance to both arm and forearm motions. By moving the point of balance, either elbow flexion or extension may be favored. Or with a flexed elbow, rotation of the humerus is assisted, giving more range in hand to face activities.

Another modification of the conventional overhead sling is the use of *two springs* (Fig. 1C), one leading to the elbow support and the other to the wrist. This combination offers more range of individual assistance to arm and forearm motions, as the placement of the springs on the overhead rods can be altered and the length and elasticity of springs may be varied. A lighter spring with more stretch may be used at the wrist to give more assistance to forearm motions, or the reverse arrangement may help in humeral motion.

Supination or pronation can be assisted (Fig. 1C) by hooking the distal support to a ring placed on either side of the handsplint instead of using the leather wrist cuff. In this way the weight of the hand can be made to assist the

weaker group. Placement of the ring so that the forearm is in mid-position at rest will favor both supination and pronation as it eliminates the friction of the wrist cuff as the forearm rotates.

A *feeder* is used to increase the range of motion and function of the patient with more severe involvement of the arm and shoulder. The forearm rests in a metal cradle or cuff balanced on a single axis so that very little power is needed to raise and lower the hand. Trunk motion, neck muscles, arm adductors, or a small amount of any shoulder girdle motion can be used to activate the feeder. Various styles of feeders are used, but they all act on the principle of the first class lever, usually combined with some horizontal motion. They may be supported from above or below.

Feeder action will require a lower lapboard to allow space for the depression of the elbow while the hand is raised. Trial will determine the height at which the feeder will operate most efficiently, and then the lapboard can be adjusted. The height of the fulcrum relative to the position of the forearm in the feeder should also be determined by trial before the final construction of the patient's individual feeder, as there may be quite a variation in the optimum level desired. A high fulcrum with the axis passing through or above the center of gravity of the forearm gives greater stability in the mid-position. While if the fulcrum is low, the mid-position is unstable with a greater tendency to tilt to either extreme position. When there is very little muscle power, the precision of adjustment is especially important in order to gain the maximum range and function possible.

The *suspension feeder* (Fig. 2A) is supported from above on the same type of rod as the overhead sling. The long spring is usually omitted and a short stiff spring is combined with a long strap. This renders the support or fulcrum more stable so that the small amount of muscle power will activate the feeder motion instead of depressing the spring. The patient can usually learn feeder action more easily and coordinately in a suspension feeder because of the simplicity and adjustability of the support. It is easier for the therapist and orthotist to determine the needed specifications and there are no mechanical parts to get out of order. In regard to their disadvantages, they do lack stability and do require overhead rods.

Stand feeders (Fig. 2B) are supported from below on a flat base which rests on the lapboard or a table. They give more stability, are portable, and may be used on any table if no wheel chair is necessary. They may require more effort for horizontal motion, may tip over, and a standard dinner table may be too high for their efficient use.

Feeders supported on ball-bearing swivel arms (Fig. 3A, 3B) may be attached to the arm rests or the back of the wheel chair or they may be clamped to a table. They eliminate the necessity for overhead rods, which makes them less conspicuous. Their horizontal plane of motion has a

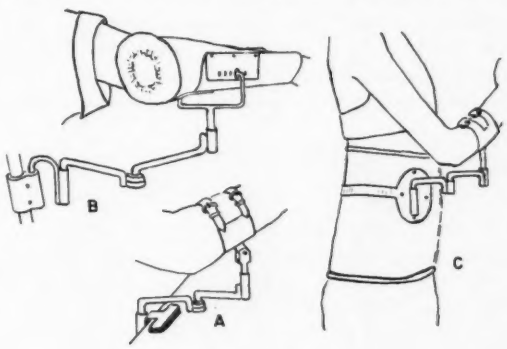

Figure 3

set pattern depending on the length and position of the swivel arms. This combined motion may be more difficult to learn or may require more control than the suspension support. However, some patients find that they have a greater range with less effort in the swivel supported feeder. The perpendicular support may be tilted slightly so that the flat plane is rendered a small degree off the horizontal, giving advantage to inward or outward motion as needed. There is more possibility of mechanical failure in this type of feeder, they are more complicated to adjust, and trial specifications are more difficult to obtain. In spite of their limitations, they are usually preferred when it is found that the need for feeders is permanent or of long duration.

Walking feeders (Fig. 3C) are used when the patient can walk freely but has severe involvement of arms and shoulders. The swivel is attached to the corset or a pelvic belt. The weight of the arm is supported, thus protecting the shoulder joint and making some functional activities possible in either standing or sitting position. Elbow flexion is favored, thus promoting any possible gain of strength in this group. Special clothing is not needed. The only change necessary is a small hole in the outer garment through which the end of the removable swivel support passes. Bilateral walking feeders may tend to cause lordosis. A single one may contribute to scoliosis and may not be indicated for function if the other upper extremity is near normal.

In considering apparatus for the paralytic hand, the same principles apply as in the arm and

shoulder. Although no two patients have the same involvement, there are some general patterns of weakness that tend to recur. The most frequent hand involvement occurs in the thenar eminence and if there is other weakness in the upper extremity, there is usually some weakness in the opponens pollicis and the abductor or flexor pollicis brevis.

The *simple opponens splint* (Fig. 4A) is designed to support the thumb in a position to favor the muscles of the thenar eminence. This is the functional position of the thumb in which it can best oppose against the fingers. Light

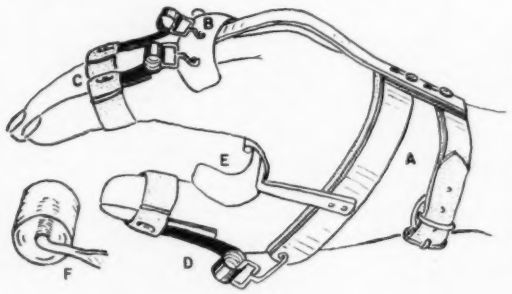

Figure 4

weight strips of metal are used to construct the handsplint. The orthotist makes frequent fittings as he shapes and rivets each bar. The metal *G-spreader* (Fig. 4E) or *plastic dowel* (Fig. 4F) fits snugly into the web space holding the thumb in abduction and preventing undue tightness of the adductor pollicis. The plastic dowel may be more comfortable, but it may interfere with the free range of flexion of the proximal phalanx of the index finger. The metal C-spreader, carefully made and shaped, can eliminate this difficulty. The metacarpal bar goes completely around the dorsum of all five metacarpals, holding the first in line with the C-spreader, preventing contracture of the extensors of the thumb, and encircling the ulnar side into the palm of the hand to preserve the palmar arch. The second or proximal bar should be in such a position that it does not interfere with wrist extension. It is usually more convenient if the strap buckles on the radial side. In some cases, the proximal metal bar may be omitted and a shaped leather strap (Fig. 5D) will suffice. The opponens splint is used early in the protective phase of treatment and may be continued as it is also an aid in function.

The *Rosenauer elastic thumb assist* (Fig. 5A) pulls the thumb forward and across the palm in a position for the thumb to oppose the fingers. The wrist strap to which the elastic is attached is kept from sliding around the wrist by the addition of a metal strip molded to fit the ulnar side of the wrist. The splint can support the

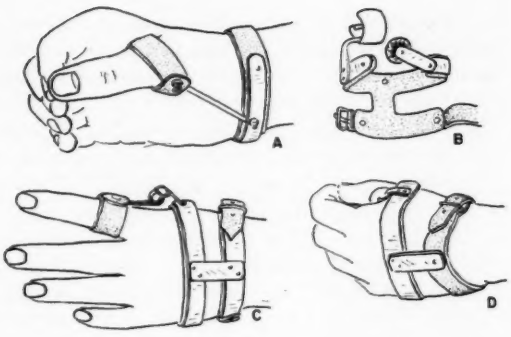

Figure 5

thumb in a rest position similar to the position in the metal splint. It allows more functional use of the thumb as active extension is possible. The elastic pull gives assistance to the motions of abduction and opposition. It is not practical to try to mobilize a tight adductor pollicis with this splint as this much elastic tension may tend to discourage coordinate motion and is likely to interfere with circulation. Supervision in the use of this splint is necessary to maintain the right amount and direction of pull and to rule out activities which cannot be performed in a coordi-

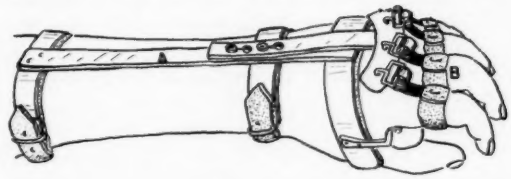

Figure 6

nate manner. Otherwise, it is possible for the patient to develop faulty patterns of thumb motion. It is practical to use this type of assist when there is weakness in the abductor pollicis brevis and/or opponens pollicis, without too much imbalance in the remaining thumb muscles. There are many other patterns of involvement in which this splint can be used successfully. This can be determined by clinical trial.

The simple opponens splint can be extended to include a *static wrist support* (Fig. 6A). This will prevent wrists drop if the extensors are weak, prevent deviation of the wrist if there is imbalance, and give the hand more stability if the flexors are weak. In considering the functional aspects of wrist extension, it would appear that the power needed to actively extend the wrist is not as great as that needed in stabilizing the wrist against the normal pull of both sets of extrinsic finger flexors. The static wrist attachment provides support and stabilization and can counterbalance the pull of all the extrinsic muscles of fingers and thumb passing over the

wrist joint. Isometric contractions of the wrist flexors and extensors will contribute to their gain of strength even though there has been no range of motion. This synergistic contraction can occur in the handsplint.

It is more desirable for function and for maintaining range if the handsplint can assist coordinate wrist motion. A *free hinge joint* (Fig. 7A) with extensions on each side of the forearm will allow active flexion and extension but will eliminate radial or ulnar deviation if there is imbalance. This correction of alignment will give the weaker muscle a chance to gain. The hinges are put on each side of the wrist to line up with the axis of wrist motion so that the splint does not ride back and forth on the hand.

A *stop* (Fig. 7B) may be added to limit flexion to about 5 or 10 degrees. This will prevent undue fatigue of wrist extensors, especially if the forearm is resting in the feeder, but will still allow functional range.

A *spring joint* (Fig. 7C) to assist extension makes active motion possible even if the wrist extensors are below a functional grade. The spring joint is similar to the Klenzac ankle joint on a leg brace and is placed on the ulnar side of the wrist. A free joint may be needed on the other side although in some cases the single side bar is satisfactory. The spring tension may be varied by adjusting the screw or changing the size of spring to accommodate to the amount of assistance necessary. This orthesis permits and assists active motion, yet will provide proper positioning and alignment at rest.

The *lumbrical bar* (Fig. 4B) is added to the handsplint when there is weakness in lumbrical action. This weakness in a hand interferes with normal grasp and release even though the extrinsic flexors and extensors of the fingers are functional. Flexion at the metacarpophalangeal joints is only possible if the interphalangeal joints are also flexed, and attempt at extension of the fingers results in hyperextension of the proximal phalanges with incomplete extension of the middle and distal phalanges. The addition of the lumbrical bar supporting the proximal phalanges in a position of slight flexion increases the function of the hand by improving the opposition of the fingers to the thumb and in the majority of cases permits the complete extension of the distal joints by the action of the extensor digitorum communis. To prevent a flat hand, it may be necessary to add a *swivel palmar pad* (Fig. 5B) to support the middle or fourth metacarpal. The lumbrical bar may be added to any handsplint either with or without a wrist extension. It can be removable, attached with two key-hole slots

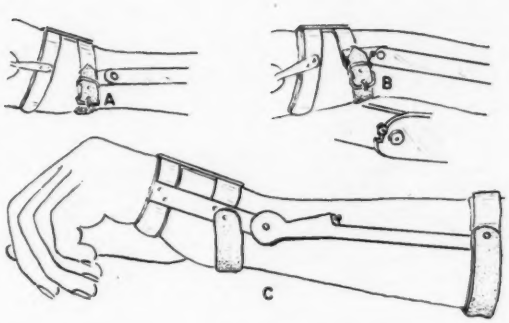

Figure 7

which slide on two screws on the dorsal bar of the handsplint.

When the involvement is reversed and lumbrical action is stronger than that of the extensor digitorum communis, assistance is needed in extending the proximal phalanges. Hunter Neg'ator springs[3] attached to leather cuffs encircling the proximal phalanges with the spindles on a bar above can assist this action. Supervision is necessary with this *extrinsic assist* (Fig. 6B) to see that the motion is coordinate and to see that the patient does use any available strength in the long finger extensors. As strength returns, the balance of power may vary and if this occurs, a change in the type of assist may be indicated. The therapist who regularly examines the patients' hands will be aware of any change of muscle strength in addition to noting any pressure areas caused by handsplints or any developing tightness or deformity.

When there is weakness in both intrinsic and extrinsic muscles of finger extension, the combination of the *lumbrical* bar (Fig. 4B) and the *Hunter Neg'ators* (Fig. 4C) makes a functional range of finger motion possible with a corresponding possibility of increase in strength. The spindles should be placed on the lumbrical bar in line with the normal position of the fingers.

The question has been raised by those not familiar with these assistive devices that perhaps we are only giving resistance to the already functional finger flexors, and that we are not preserving a balance of power. The Hunter Neg'ator, unlike a rubber band assist, has a constant tension as it is unrolled on the spindle. In assisting the extension of the fingers, only enough spring tension is necessary to supplement the pull of these muscles and two or four ounces should be sufficient. In a normal hand, if we test the relative strength of flexion and extension of the fingers, we realize the flexors are many times stronger. So a few ounces of resistance to flexion does not upset the normal balance and may help the extensors to gain. However, if

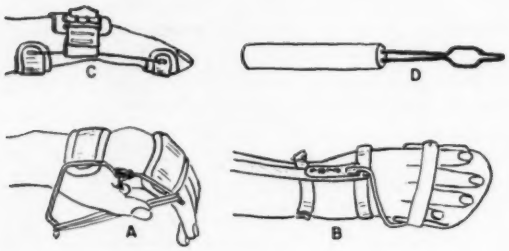

Figure 8

there is tightness or spasticity in the flexors, sufficient spring tension to overcome this may result in incoordination or may interfere with circulation. If tightness exists or persists, special procedures for stretching should precede or accompany the use of Hunter spring assistance.

If there is weakness in the extensor pollicis longus, the distal phalanx of the thumb may assume a flexed position which interferes with function and return of strength. If this is accompanied by weakness of the extensor pollicis brevis, there may be additional loss of function and malalignment. The *Hunter Neg'ator assist to thumb extension* (Fig. 4D) can correct this faulty position and aid in the recovery of the extensors. The spindle is attached to the metacarpal bar in line with the dorsal surface of the thumb as it is supported in the position of opposition in the handsplint.

The specific action of the interossei muscles is the abduction and adduction of the fingers. Since their insertion is distal to the metacarpophalangeal joint, they can assist in the lumbrical action of flexion of this joint. It is the combination of both of these actions of the first dorsal interosseus that makes it so important in all of the index finger-to-thumb activities. A *Hunter Neg'ator assist to first dorsal interosseus* (Fig. 5C) may be added to the handsplint with the cuff encircling the proximal phalanx of the index finger. This abductory pull will assist the function and return of strength of this muscle and prevent ulnar deviation of the finger. Since the spring is close to the skin surface, it does not interfere in any activities of the hand.

The *Bunnell knuckle bender*[4,5] (Fig. 8A) is used when there is a loss of passive range of finger flexion at the metacarpophalangeal joints. A molded plastic dowel fits the palm to which are hinged two padded bars, one over the proximal phalanges and the other across the dorsum of the hand. Rubber bands attached to extensions on each end of these bars give gradual pressure to increase the range of flexion. One important factor in the cause of this joint immobility may be inadequate support of the wrist. As the wrist drops, tendonesis action produces extension of the proximal phalanges, which, if allowed to persist, may result in the loss of range. This may occur in the flail hand. In the hand with active finger motion, the same joint stiffness may occur when there is weakness in wrist extension and no support or assist is provided. The patient will try to compensate for wrist weakness by the use of the extensor digitorum communi, so that, even in activities requiring flexion or grasp with the fingers, the metacarpophalangeal joints may remain in the extended position with ultimate loss of both active and passive range.

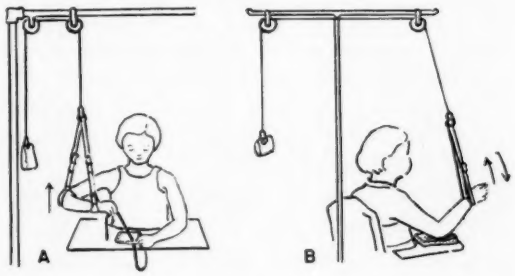

Figure 9

The *palmar plate* (Fig. 8B) is designed to mobilize tightness in finger flexion and may be attached to the opponens splint. A padded strap exerts pressure against the dorsum of the fingers as they are supported on a shaped metal plate. If the limitation of motion is caused or accompanied by tendon tightness of flexor digitorum profundus and sublimus, the splint should include a wrist support. Otherwise, if the patient flexes his wrist, adequate mobilization cannot be attained. This stretching procedure helps prevent deformities and makes it possible for the weakened muscles of finger extension to function. If Hunter Neg'ators are indicated as an assist to finger extension, their size can be minimal and the motion coordinate if the necessary forceful extension has been accomplished by the palmar plate.

The *safety pin splint*[4,5] (Fig. 8C) is designed for use on a single finger that has a flexion deformity. It is not completely rigid as the piano wire has some elasticity. The position of the wires on each side help preserve the longitudinal alignment of the finger.

A *system of weights and pulleys* can give a greater range of assistance than coil springs or elastic tension. Abduction or flexion of the arm at the shoulder (Fig. 9A) with the leather supports of the overhead sling attached to the pulley rope can be assisted with a known amount of force over a fairly complete range. This system is not practical for use on overhead rods on a chair but, on a more stable support in a

treatment area, is adaptable to a great many activities. As the muscle power improves, the known weight can be reduced.

By supporting the elbow (Fig. 9B) and attaching the forearm cuff to the pulley rope, assistance can be given to flexion or extension of the forearm. In using pulleys, if they are well made and the friction is negligible, there will be no problem in the return motion. If there

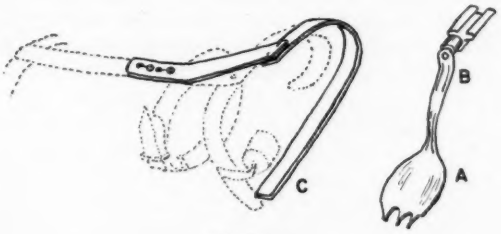

Figure 10

is some friction, it may be necessary for the therapist to perform the return motion to eliminate over-strengthening the antagonists.

Additional self-help devices may be needed in the rehabilitation process. Some of these may be temporary measures in the learning period which later can be discontinued depending upon the gains that the patient makes.

The *spork*[6] (Fig. 10A), so-called because it resembles both a spoon and a fork, may be used in the early stages of self-feeding. The handle may be adapted in many ways according to the needs of the individual. Metal rings to slip on the fingers, a cuff to slip on the hand, a larger handle for better grasp, a longer handle if elbow flexion is limited, or a swivel attachment to the handle may be indicated. For the patient who is using a feeder and who has limitation of wrist and forearm motion, the *swivel* (Fig. 10B) allows the bowl of the spork to stay level as the hand is raised from the plate to the mouth.

If the patient's grasp is not adequate for holding, the utensils may be adapted to slide on a flat metal *T-bar* (Fig. 10C), attachable to the handsplint by key-hole slots and screws. The bar is curved and passes around the inside of the hand and objects are attached to the radial side in much the same position as if the patient were holding them. The eating utensil, pen or pencil, tooth brush, lip stick, comb, typing stick, or razor may be adapted to fit this T-bar and add to the patient's independence in some of the activities of daily living.

Another type of splint for holding self-help devices is a *metal cock-up splint* (Fig. 11A) with a hollow cylinder across the palmar surface and projecting through the web space. A ball spring pushing through a hole in the side of the tube

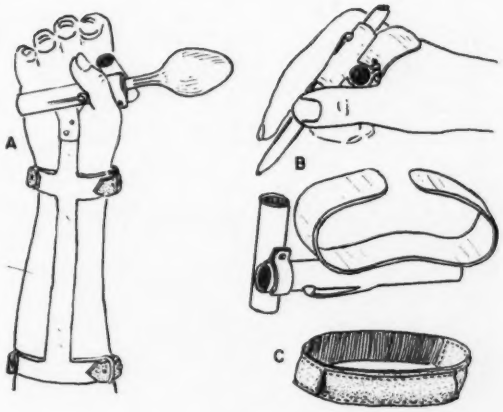

Figure 11

gives some friction so that the rod on the handle of the spoon does not slide out. A small depression on the rod into which the ball fits will give more stability and keep the spoon from sliding out or rotating. Another metal tube may be attached at right angles to the radial end of the first into which the pen or pencil may slide. If the patient does not need a wrist support, the metal tube combination may be attached to a *curved metal cuff* (Fig. 11B) which slides on the hand. One advantage of this tube type of holder is that it may be possible for the patient to attach and remove pen, spoon, etc., by himself. It is easier to slide a round rod into a round hole than to get the angle just right for a flat surface to slide into a flat groove, as in the case of the T-bar.

In some cases, if the wrist is functional but the grasp is not, a *leather cuff*[7] (Fig. 11C) for the hand, with a long pocket on the palmar surface, can hold the eating utensil or typing stick. Elastic is used across the back of the hand so that no fastening is required. Insertion of a strip of metal inside the leather before the stitching is finished gives more stability.

A *wrist corset*[8] designed to support the wrist may have a similar pocket attached to the palm which can hold the various items. The lacing is on the full length of the back allowing for adequate adjustment to fit the individual. Regular eating utensils may be used in these last two devices, but precision of placement is not always possible.

A *metal plate rail* (Fig. 12A), which attaches to one side of the plate, will assist the patient in scooping up his food as he will have something to push against with his spork or spoon.

A *rotating support* (Fig. 12B) for the plate may add to the patient's independence if his range of motion is limited. A small amount of

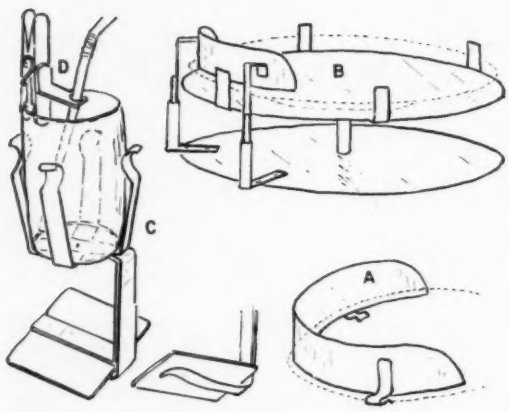

Figure 12

push with either arm or with his spoon will allow him to rotate the plate and gain access to all the food on it. A small lazy susan[9] can serve much the same purpose and may be more easily obtained.

A *glass or cup holder* (Fig. 12C) will place the drink at the desired level and can be constructed to slide on the lapboard. A *straw holder* (Fig. 12D) is helpful especially in the cup, and can be made by cementing a right angled bend of plastic to a plastic clothespin. A hole is drilled in the plastic and this combination is clipped to the side of the glass or cup. The disposable flex-straws[10,11] for use with either hot or cold liquids are made to bend at any angle.

If the patient has normal upper extremities, it should be possible for him to learn to be quite independent in the activities of daily living. If there is involvement in the upper extremities, many problems are presented, some of which can be solved by the ingenious therapist.

An *elevated toilet seat*[5,7,11] (Fig. 13A) may be needed either by the ambulatory patient, who cannot get to a standing position from a low level, or by the wheel chair patient who can learn to slide in and out of his chair to a similar level. Fortunately, this problem is being recognized by manufacturers and it is now possible to purchase different types of raised toilet seats. If one is being constructed, attachments allowing removal or adjustment of the metal risers are an added advantage. *Metal brackets* (Fig. 13B) into which the risers slide are attached in five positions on the under surface. When the risers are in the correct position, the Allen screws are tightened. This allows for possible variations in the size of the toilet bowl, a change to a lower set of risers as the patient improves, and the removal of the risers from the seat if it needs to be shipped or carried.

Sliding boards[12] to bridge the gap between the bed and the wheel chair or between the wheel chair and the auto seat may make it possible for some patients to move from one to the other independently or with a minimum of help. The sliding board can be made of wood with the ends bevelled and the surface sanded smooth. The size and weight are determined by the needs of the patient. The board can be padded and covered with a plastic fabric if this is indicated for the comfort of the patient, or corrugated rubber may be used on the board if more friction is desired.

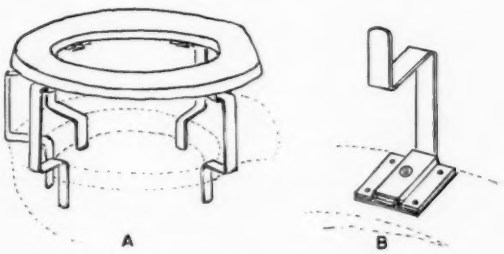

Figure 13

Bath tub seats[5,7,11] may be placed over the top of the tub or adjusted lower to fit between the sides. The patient may use the seat as an intermediate level in getting in and out from the bottom of the tub, or he may sit on the seat to bathe. Bath tub seats may be purchased or constructed. Additional bath room aids include rods or hand rails,[5,7,11] on or over the tub or beside the toilet. A long handled bath brush or sponge[7] may facilitate bathing.

Dressing and undressing may present many problems. If the patient does a part of his dressing in bed, a *trapeze*[5,7,11] above the side or over the middle of the bed may help him maneuver into the position necessary. The trapeze may be needed to help the patient come to a sitting position. A strap or *rope ladder*[5,7] attached to the foot of the bed may be all that is needed or it may be used in combination with the trapeze. Some patients prefer to put on their shoes after they are sitting in the chair. A *long handled shoe horn*[7] helps in this procedure. A *button hook* (Figure 8D) made of flexible piano wire is a help in all sizes of buttons. If buttons are too much of a problem, a different type of fastening may be used. *Reachers*[5,7,12] are an aid in dressing as well as in many other situations. Some are more easily managed than others and are not as heavy. A magnet on the end of the reacher is useful. Thoughtful choice in the selection of clothing may eliminate some of the

(*Continued on page* 166)

FUNCTIONAL BRACING OF THE UPPER EXTREMITY

CHARLOTTE E. STEITZ, O.T.R.*

Functional bracing of the upper extremity is used to supplement or replace lost function due to muscle loss, weakness or incoordination. It may be prescribed for therapeutic use or functional independence, or both.

As a *therapeutic aid,* it might consist first of an assistive hand splint worn early on obtaining a painless full range of motion. If indicated, it may then be followed by a brace encompassing shoulder and elbow. Both devices may be designed to facilitate return of muscle function through proper positioning and use.

When return of muscle strength is unlikely, an arm brace may be designed to give maximum *functional independence,* as in providing range of motion and a grasp mechanism for a flail upper extremity. Surgical procedures, whenever possible, can often replace or minimize arm bracing.

No attempt will be made to describe the construction, fitting and training principles now in use, but merely an endeavor made to indicate some of the trends. Classification of arm bracing can be made according to function and generally includes a single part or a combination of parts, the number depending on the multiplicity of the patient's needs. For example, one of the following arm functions might be accomplished by a selection from one or more of these methods:

1. *Prehension (fine or gross)*—by use of a standard hook placed under the hand or an action splint built around the hand.

2. *Forearm mobility and/or stability*—by use of cuffs, trough, metal rods, locks, hinges, springs, or rubbers.

3. *Humeral mobility and/or stability*—by use of shoulder cap, hoop, locks, hinges or rubbers. An illustration of one type of functional arm brace, both on and off the patient, is shown in figures I and II.

Control of functional arm braces will depend on careful analysis of the sources of power available and the patient's needs. Through the use of cables one may utilize a patient's own muscle power which can be harnessed from the affected or unaffected upper extremity, as by scapular elevation, humeral abduction, or scapulo-thoracic flexion; or transmitted from the lower extremity by plantar flexion, hip abduction or knee extension. Chest expansion and neck rotation provide other sources of muscle power. In the absence of adequate muscle strength, outside sources (electronic, pneumatic or hydraulic) may be used with varying degrees of success.

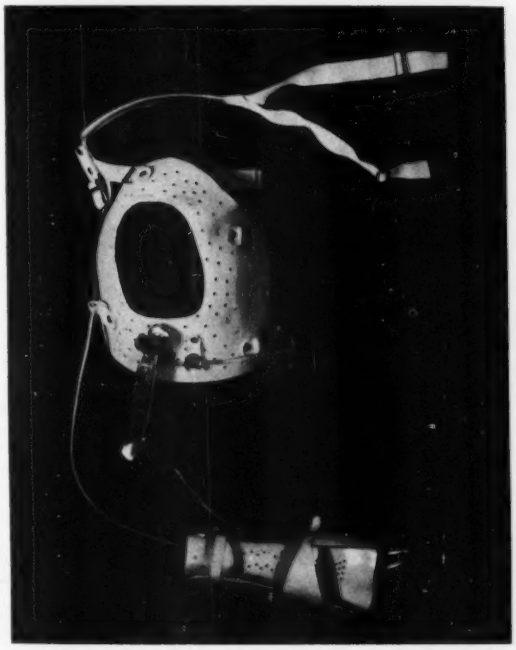

Figure 1. A functional arm brace designed at Rancho Los Amigos Hospital to provide grasp mechanism combined with mobility and stability for a flail right arm paralyzed by poliomyeltis. Weight of arm brace is 25 ounces.

Unless an upper extremity brace is completely checked out mechanically and a patient trained thoroughly in its control and use, success may be very limited. A patient cannot expect to be fitted with a device one day and walk out trained the next; often many days or even months are required. The steps in training closely follow those used in the prosthetic training program for upper extremity amputees, consisting of basic check out, controls training, and use training. However, techniques and principles may differ considerably. Goals frequently have to be dropped lower than either the patient or therapist might like. The length of the patient's training

*Upper Extremity Functional Bracing Department, Respiratory Center For Poliomyelitis, Rancho Los Amigos Hospital, Hondo, California.

Figure 2. A flail arm supplied with humeral flexion and rotation, elbow flexion and extension, forearm rotation, and prehension. Stability can be maintained in positions of shoulder flexion and extension through a locking device controlled by a cable attached to belt and powered by shoulder elevation. Elbow lock is controlled by left hand. Prehension is obtained through chest expansion.

time may be rendered unpredictable by poor work tolerance, low vital capacity, skin sensitivity, and surgical procedures, as well as by the need to experiment with newly developed and interesting brace joints or parts.

Even with the addition of a functional arm brace, special adaptations may be indicated, such as a swivel spoon for eating, built up handles, razor holder, etc. When there is almost total loss of function in one or both upper extremities, or when prescribed for therapeutic use, a functional arm brace may be considered as an arm replacement or an exercising device, and as such worn continuously throughout the day. In other cases it may have been designed to replace a particular lost function, and considered as a tool put on to fulfill a special task and then removed.

The prescription team for upper extremity functional bracing consists of the physician, orthotist or prosthetist, physical therapist, and occupational therapist, and as many representatives of the specialties concerned with the patient's welfare as available. It is imperative to the final success of the arm brace for the working staff to know as much as possible about the patient's total needs: psychological, social, vocational, self care, medical, etc. Many failures can be accredited to a poor orientation or misunderstanding on the part of the patient or staff member as to the reason for and the limitations of a brace. For instance, if all a patient really wants is to be able to drive and his arm brace is incapable of mechanically solving this problem, success may be doomed from the start. It may have little or no effect on his acceptance to point out that the device has enabled him to be independent in buttoning his shirt or opening a door.

The whole field of functional arm bracing is challenging and new enough to foresee many changes and advances in the years ahead. Outstanding work has been done in various phases of functional arm bracing in a few institutions throughout the country.[1] However, in many localities there is almost a total absence of any upper extremity functional bracing. At times rather limited but sincere efforts have been made by the occupational therapist to remedy this situation. In many instances, the therapist, though lacking in mechanical or engineering background, recognized the patient's need and at least attempted to do something constructive. Due to the complexity of upper extremity function which may demand mobility and/or stability at one time or another, the engineering principles involved are many. The need for further research and participation is great.

Success in the field of functional arm bracing requires not the work of one person, but the concerted efforts of many working together if the patient's needs are to be met.

REFERENCE

1. The May T. Morrison Rehabilitation Center in San Francisco, California, and the Georgia Warm Springs Foundation at Warm Springs, Georgia. A research program devoted entirely to functional arm bracing has been underway at Rancho Los Amigos Hospital for the past two years.

Calendar of Events

June 23-29, 1957
Annual Conference of the
American Physical Therapy
Association
Hotel Statler
Detroit, Michigan

July 22-26, 1957
Seventh World Congress
of the International Society
for the Welfare of Cripples
London, England

October 19-25, 1957
Thirty-seventh annual conference
of the American Occupational
Therapy Association
Hotel Carter
Cleveland, Ohio

THE AIMS AND METHODS OF OCCUPATIONAL THERAPY IN THE TREATMENT OF THE AFTER-EFFECTS OF POLIOMYELITIS

ROBERT L. BENNETT, M.D.*
MURIEL F. DRIVER, O.T.R.**

In presenting an outline of occupational therapy procedures followed in the treatment of the after-effects of poliomyelitis, reference must be made to the principles of total treatment of which occupational therapy is one component. The occupational therapist needs to understand these principles and their influence upon the aims, timing, preparation for, planning of and methods of treatment. Much has already been written regarding the total care of the poliomyelitis patient. (See references.) Methods of treatment will be described more fully here.

AIMS OF TREATMENT

Occupational therapy is prescribed by the physician to accomplish the following aims:[3]

1. "To mobilize, coordinate and strengthen bodily segments."

This brief statement embodies the core of early convalescent occupational therapy for the poliomyelitis patient. It is usual to develop coordinate muscle action before considering strengthening procedures. The mobilizing element of light activity is of great importance but should not be confused with the more radical mobilizing routines of physical therapy.

2. "To develop skill and endurance for necessary bodily activities."

This can be considered as the definition of the second stage of treatment, the later convalescent period. When the most significant degree of recovery has occurred the patient progresses to a program of increased activity. This is specifically designed to teach the patient to utilize his residual muscle power as dictated by his daily living needs. Activity is increased according to the speed with which the patient develops skill and endurance, without reversing the gains achieved through preceding care.

3. "To test the physical components of occupational fitness."

The task of the occupational therapist is to appraise the patient's physical performance in terms relating to his return to employment or selection of training. It is more practical to complete this appraisal during the later period of care but consideration of its elements must influence the total plan for treatment.

4. "Promotion of psychological stability through intelligent adjustment to unalterable physical limitations."

In some instances this may be the sole aim of treatment. More frequently it is concurrent with the three previously mentioned. Without striving for this, other aims cannot be completely achieved.

TIMING OF TREATMENT

"How soon after onset is occupational therapy prescribed?" This seems to be a frequent question. A dogmatic statement of a specified number of weeks would be both difficult and unwise to make. There are many deciding factors, including severity of the initial illness, type and extent of the paralytic involvement, age of the patient, and the patient's psychological, physiological and emotional status.

It is more accurate to say that occupational therapy is most frequently prescribed when the following circumstances exist:

1. There is a pain free range of motion present in the segment to be activated. Anatomically complete range is not necessary but there should be sufficient range to permit coordinate functioning of the part.
2. Some coordination has been initiated in the segment through physical therapy.
3. The patient can be placed in a comfortable position that permits active-assisted and active motion without disturbing coordination. This is most frequently a semi-sitting or full sitting position on a chaise longue or in a wheel chair.[2]
4. Protective and assistive apparatus such as hand splints and overhead slings are correctly fitted.

The next question, regarding timing of treatment, concerns the progression of the program from the definitive muscle reeducation approach to that which serves to make the patient more capable of purposeful function. This is prescribed by the physician who evaluates his clinical observations with the progress reported by each

*Medical director, Warm Springs Foundation, Georgia.
**Chief occupational therapist, Warm Springs Foundation, Georgia.

discipline treating the patient. Although it is usual to select the time at which returning muscle power seems to have reached a stable level, many other factors are considered. Social and economic factors in the patient's life will accelerate or delay this change of program. A child is likely to be maintained on a purely protective and muscle reeducation program longer than an adult. A wage earner, with pressures of family dependents, may not be able to remain on a slow program as long as is ideal.[1]

ORIENTATION OF THE OCCUPATIONAL THERAPIST

There are several specific areas of knowledge required by the occupational therapist. A knowledge of the disease is necessary of course, and this must be of sufficient extent to include a thorough understanding of the after-effects of the disease as well as of the modern methods of total care.[4]

A highly specialized knowledge of kinesiology is vital. Some introduction to the principles and methods of muscle reeducation, as done by the physical therapist, is invaluable. These combined constitute the basis upon which the treatment techniques of occupational therapy are developed.

The occupational therapist must be able to examine the traditional media and develop the ability to reduce the stresses of activity to minimal levels appropriate to the reduction and imbalance of muscle power. Training in the theory and methods of manual muscle testing teach the therapist to recognize the activity potential of weakened muscles. In addition, this training aids in the accurate recognition of substitute movements that must be avoided. A full appreciation of the term resistance is a cardinal necessity. Subsequent description of treatment methods will serve to illustrate this.

The term activity must in itself be fully appreciated in all its ramifications: "The resumption of neuromuscular activity is the most beneficial and, at the same time, the most dangerous aspect of the modern treatment of the after-effects of acute anterior poliomyelitis . . . Activity is usually thought of as movement of bodily segments with changing tension in muscles and motion in joints. But activity does not necessarily imply movement. Activity should be thought of as any stress within or upon bodily segments from movement or position . . . To the patient the dangers of over-anxiety are at least three: (1) structural distortion of involved bodily segments; (2) faulty patterns of bodily movement; (3) loss of muscle strength."[1]

Since the occupational therapist could be described in simple language as "putting the patient to work" and the act of working produces fatigue in all workers it is necessary to examine the effects of fatigue upon the poliomyelitis patient. It is essential to avoid fatigue, and to learn to recognize sources and signs of fatigue. Reversion to substitute movements, diminished coordination, and tremor are indications of fatigue.

Figure I. Simple Opponens Splint

Each of these areas of knowledge are closely related. Each involves extensive study and what is more important, continuing study.

INTERPRETATION TO THE PATIENT

The response of the patient to treatment is strongly influenced by adequate interpretation by the occupational therapist. Initial discussion of the plan for treatment is only one step in this direction. Reinterpretations must be given as the patient progresses in his course of treatment. It is well to remember that all patients cannot be expected to react favorably to some of the traditional occupational therapy media. Logical explanations are made as to the exercise potential of the media and the assurance given that they merely serve as a bridge to more usual or familiar forms of purposeful activity.

PROTECTIVE AND ASSISTIVE APPARATUS

Since it has already been stated that occupational therapy is not initiated until protective and assistive apparatus have been fitted, it is important to review the essential details of the more usual ortheses relating to early convalescent care of the upper-extremity as described in the preceding article. It is necessary to be fully aware of the functional anatomy of the hand and the deforming factors of disabilities as well as of the details of apparatus construction, if ortheses are to be designed properly and used effectively.[7] (Figures I, II and III have been included to illustrate this.)

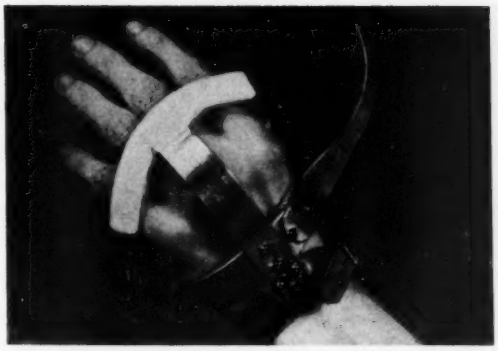

Figure II. Lumbricales Bar and First Dorsal Interosseus Assistance.

SIMPLE OPPONENS SPLINT
(Figure I)

Purpose and function: This device holds the thumb in abduction and midway between flexion and extension, maintaining stretch on the thumb web. It permits reeducation of flexors, abductors and opponens muscles without aggravation from the stronger pull of the extensors and adductors.

Note the sweep and snug fit of the C-bar in the thumb web, and the position and direction of the radial portion of the dorsal bar as it crosses the first phalanx of the thumb. The crossbar at the wrist directs the straps proximally to fasten snugly on the proximal volar border of the wrist. This is important in maintaining the entire splint in correct position. The crossbar of this splint which wraps into the palm of the hand, is located to permit secure fit and allow maximum flexion of the third and fourth fingers.

LUMBRICALES BAR AND FIRST DORSAL INTEROSSEUS ASSISTANCE
(Figure II)
Lumbricales Bar

Purpose and function: The curved bar attached to the simple opponens splint, protects the weaker lumbricales from the stronger pull of the extrinsic extensors. It touches the proximal phalanges of the fingers at their distal ends, holding these in the beginning-flexion range at the metacarpal-phalangeal joints. Note that the attaching stem is arched over the knuckles to permit comfortable motion at the metacarpal-phalangeal joint.

First Dorsal Interosseus Assistance

Purpose and function: The scimitar-shaped bar, projecting laterally, provides support for the elastic which, attaching by means of a ring to the first phalanx, draws the index finger into the beginning of abduction and slight flexion. This serves to stabilize weakened pinch. The elastic action draws the finger into the range of the first dorsal interosseus on relaxation of finger flexor and palmar interosseus.

OPPONENS SPLINT SHOWING ADDITIONAL ATTACHMENTS
(Figure III)
Wrist Extension Support

Purpose and function: The supporting bar is applied wherever there is significant imbalance of any of the wrist muscles; however, its usual purpose is to protect the weaker extensors from the stronger pull of the flexors of the wrist. The bar, which extends two-thirds of the length of the forearm, also serves as a balance for additional distal attachments.

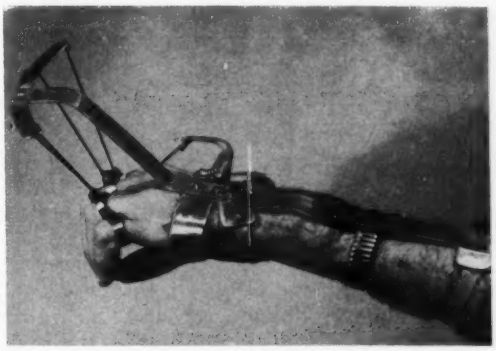

Figure III. Opponens Splint Showing Additional Attachments.

Extrinsic Finger Extension Assistance

Purpose and function: The fingers are held in a position that permits the limited power of the finger extensors to be used. On relaxation of the action of flexors the dynamic element of the elastics draws the phalanges up into the range of extension. At rest the fingers are midway between flexion and extension. Full extension is not necessary; there need be only enough to allow the hand to be opened for practical use. Note that the height of the outrigger must be sufficient to allow the elastic to activate the desired motion. The elastic must be carefully selected to avoid offering resistance to the flexors. The cross bar of the outrigger projects forward to permit suspension of the rings at right angles to the arc of motion.

Intrinsic Finger Extension Assistance
(Not illustrated)

Purpose and function: The fingers are held in a position which permits the limited power of the intrinsic extensors to function. This is made in the same fashion as the extrinsic assistance. The lumbricales bar is added and the crossbar

of the outrigger extends further forward to permit perpendicular suspension of the rings. The rings are attached to the middle phalanges of the fingers.

Overhead Slings and High Lapboard
(Figure IX)

Purpose: Overhead slings are prescribed to provide protection for weakened deltoid muscles and assistance in muscle reeducation. The arms are positioned in 80° forward flexion and slight abduction. The lapboard is high to provide a working surface for the hands which are suspended in this elevated position. The elbow clears the surface of the lapboard by one inch if the grades of the deltoid are "poor plus," or lower. As the grades improve, the slings are lowered slightly until the elbow just clears the surface.

Overhead Bars
(Figure IX)

The bars are constructed from ⅜" cold rolled steel rods. These bars are important as they provide a secure means of suspension for the slings. The spring or play of the bars themselves produces part of the assistance which is needed for extremity motions. Note that the height of the rod extends 18" to 24" above the top of the patient's head. The length of the horizontal projection is dependent upon the length of the patient's arm; usually it is 18" to 24".

The Spring
(Figure IX)

The spring which connects the sling to the bar is another source of activation for motions of the upper extremity. This is an expansion spring approximately 5" in length, made from piano wire, and closely wound.

The Slings
(Figure IX)

The slings are clearly shown in Figure IX. The soft areas of the elbow cuffs maintain the elbows securely in place. One or both of the wrist cuffs can be replaced with a swivel clip attached to the hand splint.

High Lapboard
(Figure IX)

The surface area of the high lapboard is of sufficient size to accommodate the elbows and the hands. This means that the patient with long arms and forearms will require a larger surface area than a child or small adult. Note the adjustable separators which permit fine changes in height. As recovery occurs it is desirable to be able to make gradual reductions in height.

TREATMENT CONSIDERATIONS

The foundation for the occupational therapy plan is contained in the prescription.[3] This dictates the program level, i.e., coordinate and strengthen, or increase function. The prescription also indicates the segments to be activated as well as any necessary specific precautions.

The second area of reference is the complete medical record. The muscle test, the functional test, and X-rays of the spine expand the information of the prescription. Further information from the social service record and from the psychologist, teacher, and other workers will help to create a realistic picture of the patient and his future needs. Final treatment planning can be done after several periods during which the occupational therapist correlates all the clinical material with the particular needs of the patient.

The upper extremity is a beautiful and complex anatomical mechanism. Before discussing treatment it is necessary to review its performance in general terms. The shoulder girdle provides stability and gross placement of the more distal parts of the extremity. This stabilization and placement is repeated more definitely by the elbow, forearm and wrist. These segments are all synchronized for the purpose of utilizing the highly developed function of the hand.

The following list describes briefly the more frequent areas of upper extremity damage resulting from poliomyelitis:

Shoulder:
- Deltoid (all parts)
- Rhomboids (major and minor)
- Trapezius (middle and lower)
- Pectorals (major and minor)

Elbow:
- Biceps
- Triceps
- Brachioradialis

Wrist:
- Extensors
- Flexors

Hand:
- Extensor digitorum communis
- Lumbricales
- Flexor Digitorum sublimis
- Flexor digitorum profundus
- *Dorsal interossei (most frequently first interosseus)
- *Opponens pollicis
- Abductors pollicis (longus and brevis)
- Flexor pollicis (longus and brevis)

*Loss of effective pinch

Frequent deforming factors and substitutions to be avoided:

1. "Hiking" the shoulder with the upper trapezius will interfere with reeducation of the deltoid.

2. When the combined action of thumb extensors and adductors is used to compensate for weakened volar thumb muscles, the thumb web

will contract and there will be displacement of the first metacarpal.

3. Overuse of the extrinsic finger extensors will limit reeducation of the lumbricales and lead to a claw-like deformity of the fingers.

4. Overuse of the first palmar interosseus and the flexors of the index finger will limit reeducation possibilities. It will lead to ulnar deviation of this finger and seriously reduce the efficiency of pinch.

Sequence of Treatment. Since it is likely that the shoulder will be required to assume the additional stress of crutch walking, meticulous protection and systematic re-education must be initiated for this joint. This does not necessarily imply immediate active exercise in occupational therapy; it is more likely that the slow methodical reeducation process will be initiated in physical therapy. In occupational therapy the protection of slings will be utilized for the shoulders so that active reeducation can be initiated in the more distal segments of the extremity. The teaching of shoulder control and eradication of shoulder hiking, however, are objectives which accompany reeducation of distal parts. Thus it appears that the program is started distally, concentrating on reeducation of hands and forearms, and progressing into activation of the shoulders as further gains occur in coordination and strength.

There is an additional aim for occupational therapy, not stated previously: that is the task of teaching the patient the correct purpose and use of the protective and assistive apparatus. As the patient proceeds to work in the apparatus he can realize its true value.

OCCUPATIONAL THERAPY FOR CHILDREN

Modification of approach and methods is necessary to provide appropriate occupational therapy for children affected by poliomyelitis.[5] Spinal deviations are of more frequent occurrence and of greater significance among children. Close scrutiny must be given to the stresses on the spine resulting from activity.[8]

Adaptation of media will require knowledge of the various levels of interest and skill to be expected in the different age groups. The same type of exercise will be given to the child as to the adult but simplification of both the instruction and the media is essential. Because the child's response to treatment is modified by his lack of understanding of treatment aims, the tiny pre-school child may perform the desired movement only occasionally throughout one treatment period.[5]

TREATMENT METHODS

Treatment methods are considered in a logical sequence under two generalized headings: (1) Early convalescent care, and (2) late convalescent care. Under each of these headings consideration will be given to the disabilities most frequently treated. Details will be given of only some of the appropriate methods which can be used in treatment.

SELECTION OF ACTIVITY

JOINTS	MOTION	TYPING	LEATHER LACING	BILATERAL SANDING	WEAVING
HAND	Pinch	1st dorsal	x		x
	Finger extension	x	x		
	Finger flexion	x	x		
	Grasp			x	x
WRIST	Extension		x		
	Flexion		x		
FOREARM	Supination	positioning	x	for position	x
	Pronation		x	for position	x
ELBOW	Flexion		x		x
	Extension		x		x
SHOULDER	Flexion			x	x
	Horizontal abduction		x	x	x
	Horizontal adduction		x	x	x

CHART I

Early convalescent care. Four activities are selected as appropriate examples. Their most usual application for muscle reeducation is shown in the second column of Chart I. Many other activities are used. A small variety of modalities will be included in one patient's treatment program to provide special emphasis upon each of his disability areas. Within one single thirty minute period two or three media may be used. This permits an ample rest period for one area while another area is activated.

Typing

Because the keys of an electromatic typewriter offer less resistance than those of manual typewriters the former is used more widely. The most significant application of typing as a medium of treatment is for the reeducation of the hand muscles with their complex patterns of mo-

tions. Figure IV shows the typical position for typing with slings and typing lapboard in place. Figure V gives some indication of the detailed finger action involved. Notice the index finger striking N, using the first dorsal interosseus and finger flexors. This is useful as a portion of the process of reeducating pinch.

Typing is used as an early medium to help the patient control faulty shoulder motions. The elbow is removed from the sling and stabilized with a foam rubber pad on the lapboard. This limits shoulder action and permits the use of the hand without the instinctive shrugging of the shoulder. As improvement occurs the slings are replaced and the patient assumes the responsibility, under supervision, for conscious control of shoulder hiking.

Leather Lacing

As is indicated in Chart I, leather lacing is used extensively. The strenuous motions used in cutting, assembly and punching are usually avoided. Resistance to the motion of lacing is reduced or increased according to the size and shape of the holes used, and the thickness and width of the lacing. It is frequently necessary for the therapist to insert the lacing tip to avoid the undesirable pinch illustrated in Figure VI. This picture shows the thumb braced against the bar of the hand splint which position masks the strong action of the thumb extensors. The index finger has been forced into ulnar deviation and the resulting inefficient pinch is readily recognized. A preliminary method for acceptable pinch reeducation can be seen in Figure VIII. The patient in Figure VIII is able to insert the lacing tip into the crosses of the stitch but needs help in putting it through the slit. Assistance from the therapist will be gradually reduced as the patient gains in independent performance of the activity.

Grosser arm motions are combined with pinch retraining as shown in Figure IX. It is usual to perform this activity while using the slings and lapboard at the prescribed height. Repetitions are maintained at a low level, six or seven repetitions followed by a rest. As endurance increases the repetitions increase and the rest periods become more widely spaced. The picture shows the most desirable position for reeducation of the triceps.

In the early stages of shoulder exercise this activity is very useful as it is light and the motions are easily controlled with supervision. This can be used as a progression step in control of shoulder hiking.

Bilateral Sanding

Bilateral sanding is a source of rhythmical, controlled movement of a gross nature for elbow and shoulder activation. It can be used to advantage also for the development of sitting trunk balance. Once the most desirable position has been obtained for the arms in the slings, and the stock has been placed in the position most favorable for exercise, the sanding motions are simple. Resistance to sanding is minimal. Repetitions of motions and length of working time can be increased as the patient progresses. Range of motion is controlled by length of the stock, length of the sanding rod and position of the work. Figure X shows that by placing the work close to the patient and by using a 25" sanding rod, emphasis of treatment is on the posterior shoulder girdle. Even if slings have been deleted from the overall program of the patient, they are always used when sanding to insure the best pattern of motion and to prevent fatigue.

Because of the ease and simplicity of the motions of this activity it can be used as a progression in the task of teaching control of shoulder hiking.

Weaving

The Peacock type of loom is so simple in construction that it offers a minimum amount of resistance to exercise; it therefore presents few substitution potentials. The shuttle rests (or miniature lapboards) shown in Figure XI, allow the shuttle to be placed within easy reach. They eliminate the danger of having the patient reaching down to the table against the supporting slings. The beater extension, also shown, affords

SELECTION OF ACTIVITIES FOR FEEDER TRAINING AND FUNCTION
Key: T Training F Function

ACTIVITY	TYPE OF MOTION			
	Vertical Plane (hand to mouth)	Gross Horizontal (reach)	Precise Placement	Skilled Hand Function
Leather Lacing	T	T	T	T
Typing			T	T
Bilateral Sanding		T		
Checkers			T	
Card Playing	T		T	
Dressmaking		F	F	F
Drafting		F	F	F

CHART II

Figure IV. Position for Typing

a desirable means of operating the beater. It eliminates the tendency of the patient to brace his hand splint against the front beam pulling against the opponens muscle. Most particularly this attachment enhances the forearm position when emphasis is placed upon posterior shoulder activity. The position of the loom in relation to the patient's trunk controls the range of arm motion. Pronation and supination can be obtained by movements of the shuttle and by final positioning of the weft.

This is a freer activity than bilateral sanding and is not used for shoulder activity unless the patterns of motion are well coordinated. However, the weaving period can be longer because weaving requires a variety of motions, and while one set of muscles is working another group can rest.

For protection of hand motions it may be necessary in initial stages for the therapist to change the harness or to maintain the harness in position for improvement of the shed. The resistance provided by the harness roller is varied by adjusting the screw at the side of the upright.

Late convalescent care. The patients can be divided into two comprehensive groups during this phase of care. Some can be progressed through a program of specialized training, learning to use their remaining power to the greatest advantage. Concurrent with this program a gradual reduction may be made in protective apparatus. Other patients must be fitted with additional,

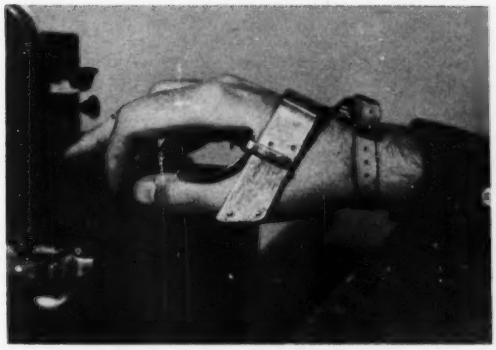

Figure V. Finger Action in Typing

permanent apparatus that will enable them to make the best use of residual muscle strength. These apparatus refer to the ortheses described as feeders.[7] As apparatus are modified in amount, the patient is tempted to abuse his new freedom of motion by trying to do more than he should.

For the first group variety and amount of activity are gradually increased. Development of endurance is of prime importance coupled with skill in those functions that are most significant to the patient. It is probable that during this period the fourth aim of treatment as described

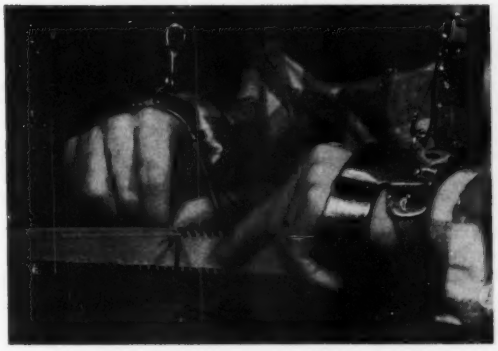

Figure VI. Incorrect Pinch

earlier plays a major role. The patient is faced with the tremendous realization that hope for further important recovery must be modified markedly. The selection of treatment media is made according to the type of living routines the patient expects to face on return home. This treatment program can assist the patient with the process of learning to budget his energies and recognize his sources of fatigue. Although the change of program is not dramatic as far as the modalities are concerned, it is nevertheless of great importance.

In many instances certain selected strengthening routines will be continued from the conservative program. This is most frequently done to

Figure VII. Correct Preliminary Training of Pinch

aid in strengthening potential motors for surgical transplants of the hand, or to strengthen shoulder muscles as they relate to the patient's walking reeducation.

Feeder equipment is fitted to those patients who because of limited strength of biceps (or triceps) cannot sustain or accomplish a successful hand to mouth motion and are limited in their ability to reach. Therefore, evaluation of shoulder and elbow action must be made before selecting this apparatus.

Figure VIII. Progression in Function of Pinch

The operation of feeders requires intensive training. As training and practice progress it may become apparent there is need for further or finer adjustments of the apparatus, or that particular motions will require additional specific practice on the part of the patient. Assessment of these needs can be assisted by placing the patient in an activity situation where continuous practice can take place. The definitive techniques of muscle reeducation are adapted to provide this training. (See Chart II). As skillful use of the feeders develops, exploration of functional potentials begins. (See Chart II). The patient with functional hands usually can learn to profit from this equipment fairly rapidly, shifting the emphasis from training to function much

Figure IX. Use of Leather Lacing for Muscle Reeducation.

earlier than the patient with little or no hand power. The latter patients must spend a great deal of time in learning to manipulate and control the motion of the apparatus.

The sequence of training is as follows: Hand to mouth motions (vertical plane), reach (horizontal plane), precise placement of the hand, and finally, skilled use of the hand or of the adaptive devices replacing prehension.

Mouthstick Activities[10]

In spite of the application of feeders some patients have such limited upper extremity function that certain small tasks must be accomplished by means of a mouthstick. These include typing, playing cards, turning pages, painting, and with a circuit breaker, using a telephone. Writing can be taught but it is a laborious process and is usually aimed at production of a legible signature.

Pre-Vocational Appraisal[12, 13]

Consideration must be given to the patient's performance as it relates to employment or training. The occupational therapist appraises the patient's performance in a work-situation simulating some of the aspects of his future vocation. It is impossible to reproduce all aspects of all jobs, nor is the patient physically or emotionally ready for the full impact of a true job situation. Job samples are presented to allow the patient

Figure X. Bilateral Sanding for Muscle Reeducation

to compare his present status with his future needs. Observations made by the occupational therapist will include the following: physical performance, accuracy of performance, concentration, interest, endurance, response to instruction and ability to follow verbal or written instructions. It is essential that the occupational therapist be highly objective in recording a pre-vocational appraisal. These findings are correlated by the physician with all the extensive data from other sources such as physical therapy, psychology and social service. The subsequent evaluation is

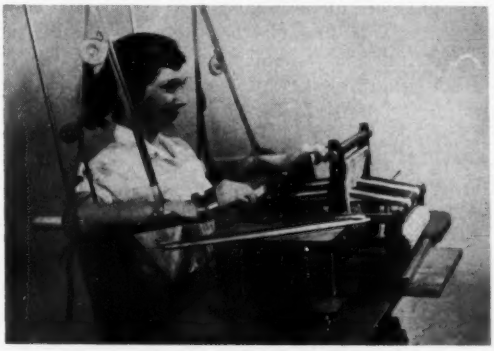

Figure XI. Weaving for Muscle Reeducation

shared with the vocational counsellor and is used as an aid in placement. The most important element of a comprehensive approach to care is the effect upon the patient. While he is still in the hospital he must appraise his positive potentials, and at the same time be aware of his significant limitations.

CONCLUSION

The purpose of this article has been to present a reference outline. Emphasis has been placed upon underlying principles and preliminary methods of treatment as a foundation for the more individual considerations of the later phases of treatment. It must be remembered that techniques described have been selected as samples; complete details of the program have not been presented. These techniques are not new or original but represent the composite efforts of many occupational therapists over a long period of time.

Occupational therapy in the treatment of the after-effects of poliomyelitis is dependent upon the following: (1) An understanding of the effects of the disease; (2) A highly developed knowledge of kinesiology; (3) The recognition of the action potential of reduced muscle power; (4) The ability to translate this knowledge into correct treatment methods through recognition of the stresses of activity; and (5) A realistic perspective of the patient's ultimate goals.

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THE COMMUNITY SHARE IN TOTAL PATIENT CARE

RUTH A. LOCHER, M.S.S.*

Final success in rehabilitation rests upon community participation. The finest efforts of the hospital or rehabilitation center team can be vitiated by failure to include the patient's home community in the planning. Timing in the use of resources is just as important as the timing of spinal fusion or a tendon transfer. Exploration and knowledge of the home community should not be an after-thought or a last minute gesture when the patient is being discharged. This should be done early.

Usually it is the responsibility of one particular team member to have knowledge of resources at her finger-tips. This member is the medical social worker. Soon after admission of the patient, information about the agencies in the community should be available. These include agencies or groups providing services, facilities, financial assistance and counseling. None may be needed if the outcome of treatment is total recovery, but many parts of the rehabilitation program may depend upon community help. The hospital stay may be shortened considerably by effective use of local resources. The advantage to the patient of a briefer separation from his family and normal social environment is incalculable.

Obviously medical social workers are not always available. Therefore, it is essential for other members of the hospital team to have some knowledge of the kinds of resources that exist, what they can do, and how they can be located. For polio patients, this is a lesser problem than it is for patients with some of the other handicapping diseases. Hospitalization and treatment for polio patients is assured for all who need and want it by the National Foundation for Infantile Paralysis directly through the local county chapter. When specialized care and rehabilitation for these patients is not possible in the home hospital or area, the chapter can be the first resource in securing help in planning for other services. For one thing, the United States is divided into regions and in each of these seven regions there is a medical social consultant available to the chapters or to the hospitals where polio patients are treated. Location of these regional offices can be learned usually through the local chapter of the National Foundation. The medical social consultant can be of great service to the treatment team, the patient and the family, in locating proper resources for services to the patient before and after he has returned home.

Needless to say, community resources for disabled persons vary a great deal from one locality within the state to another. However, in practically every state in the country there are some federal and state programs existing to help handicapped children and adults. In the majority of these states there will be at least one medical social consultant attached to the state office.

The federal-state programs are administered differently in different states. In some states there is a separate agency or commission set up for handling the Crippled Children's Program and in many others it is attached to the county welfare department under a variety of names. The Crippled Children's Program can provide some follow-up care, home physical therapy or supervision of exercises, and consultation related to home nursing care and the changing needs for further treatment. Contact with the county welfare department would be sufficient to find out how these services can be made available to individuals.

Two other federal-state programs that also are likely to be administered by the county welfare department are the Aid to the Disabled, and the Aid to Dependent Children. These two programs provide financial assistance to the handicapped individual: Aid to the Disabled to the patient himself; Aid to Dependent Children to the family of the disabled parent who has been responsible for support. This financial assistance applies only to maintenance, not medical care. If the county welfare departments cannot or do not give adequate information about these various services, information can always be secured directly from the state department of social welfare, which, too, may have medical social or children's consultants.

If the patient comes from an urban community the resources available for him can be located through the local council of social agencies. This organization, which is the coordinating body for all the agencies in the community, may also have the name of Community Services, Welfare Federation, or some similar title. Guidance or direction could be secured through this organization.

There are numerous private agencies (this means not tax-supported) throughout the country that can offer help to patients and their families. The family service agencies, child guidance clinics or mental hygiene clinics may be used for those families or patients who have difficulty in facing the handicaps or the new responsibilities. Family

*Assistant Director Social Service Department, University Hospital, University of Michigan.

service helps in the practical areas of family living through counseling, education, locating needed resources, and a homemaker service in some cities. If the mother is incapacitated or out of the home, a supervised homemaker maintains the household.

The National Society for Crippled Children and Adults, which maintains state and sometimes county chapters, can be called upon for occupational therapy in the home, camp planning, transportation to clinics and some kinds of equipment. This occupational therapy may be diversional rather than therapeutic as it is in the clinics and hospitals. As with other agencies, services vary from community to community.

Since most treatment programs are designed to return the patient to normal activity in so far as this is possible, the vocational aspects must not be ignored. This applies to patients of any age. Most of us assume that we are liked as persons, as members of families and communities. Nonetheless, we also have more than a suspicion that we are liked and needed for what we can do. The urge to create or produce things, to have a part in social and economic development, to be active, mentally or physically—this is basic. A patient can lose this urge if he feels unwanted or not needed. From the start it is up to the treatment team to promote a feeling of acceptance and usefulness. Unfortunately, our focus is so often upon what is lost—the disability—rather than upon what is functional and usable. It is foolish to say that the disability should be overlooked. The patient is constantly aware of his loss. We all attempt to overcome the handicap, to re-educate, to produce new devices. This is essential and the foundation for total rehabilitation. But there must be more than physical restoration and substitution. The patient must have conviction that his life can be a useful one. The staff needs to have that same conviction about him, and show it.

The future vocation of children and adolescents depends largely upon the attitude of others toward disability. We endorse the "employ the handicapped" slogan, and thus draw attention to the disability. Very often, much too often, children are returned to the community and placed in a school for "crippled children" or special classrooms for the "handicapped." Why separate them? Why not include them in the regular classrooms to help them adjust to their limitations in a normal setting? Let them deal with the realistic problems of daily living early, so that the adjustment need not be faced suddenly after long years of special arrangements and concessions. Certainly the degree of handicap will modify the school plans, but frequently the teacher and fellow pupils can and will make it possible for the disabled child to participate in the ordinary school. There are tremendous advantages to the so-called normal children in such an arrangement. They can learn early that a physical disability is not completely limiting. Daily observation and experience will demonstrate the areas in which productivity is equal, or even superior. When these children reach adulthood and become fellow-workers or employers, there is less question about the possibility of performance on the job. Emphasis will be on ability—skills—creativity.

Opportunity for the development of vocational interests is greatest in the regular educational setting. The child is exposed to many fields of learning and the challenge can give direction to the child and teacher toward vocational planning. Actual classroom experience gives the school counselor or the vocational counselor a sound basis upon which to evaluate the child's potentials.

For the adult patient who will need help in considering his future employment or vocational activity there is much the staff can offer. The skills of everyone on the treatment team are needed. In addition to restoring the patient to the highest functional level possible, the staff must be aware of the patient's need to be economically independent and useful in some capacity to himself and his family. Recognition of this often unexpressed wish should be acknowledged by the staff as soon as it is feasible. Perhaps much of the success of the physical rehabilitation program will depend on assurance by the staff that they share in the concern about "the job." Naturally, focus will not be on this aspect of the treatment at the beginning. But it must be a part of the thinking that determines the direction of treatment.

There are many steps in the path toward this goal. If the patient remains in the treatment center for several months, the staff will have the opportunity to really know him. They will learn much about his past achievements, interests, education, family relationships, employer-employee relationships, reactions to disappointments, failures and illnesses. As knowledge about the patient expands and the staff understands what kind of person he is, exploration of vocational possibilities is easier. It will be discovered that the patient can and should be an active participant in this venture. He knows what he likes to do, what he is capable of doing, and the kinds of things that are in demand in his home community. A long list of jobs that can be performed by disabled individuals is of no value if the

(*Continued on page* 173)

PROFESSIONAL EDUCATION PROGRAM FOR REHABILITATION PLANNING

CATHERINE WORTHINGHAM, Ph.D.*

Whether one describes rehabilitation in terms of total patient care or any of its components, specialists in the field agree that the disabled individual like everyone else should be given a chance to live an active, useful life.

The comprehensive patient aid program of the National Foundation for Infantile Paralysis is based on that premise. A three point program embracing patient aid, research, and education is planned to assist the individual with a disability to realize his potentials and goals physically, mentally, emotionally, socially and economically.

From the beginning it was evident to the National Foundation that a rehabilitation plan by itself was not enough. Many tools including skilled personnel and visual aids were needed to develop its plans and provide essential patient care services, to improve diagnostic and treatment techniques and to develop a better understanding of the patient's ever-changing needs. This thinking was the beginning of the organization's professional education program which adopted as its major objective "education for professional competence."

This objective was a very realistic one. When the National Foundation was established in 1938 there were not enough well-qualified professional persons available to provide poliomyelitis or any other patients with the extent and types of treatment they required for recovery. Consequently in 1939, the National Foundation made its first professional education grant. Given to the National Organization for Public Health Nursing, the grant was made specifically to help prepare nurses to take care of orthopedic conditions resulting from poliomyelitis. The program involved the development of teaching techniques and educational media in the field of orthopedics.

This was the beginning of a program which since 1939, through grants to colleges, universities, professional schools, organizations and associations and through scholarship and fellowship awards, has helped to improve and provide total patient care services by (1) promoting better standards of education in medical and medical associate fields, and (2) increasing the number of qualified persons available for research, teaching and patient care.

The American Occupational Therapy Association is one of the professional associations which is benefiting from the grant program. In 1953, the sum of $16,000.00 and in 1954, the sum of $19,500.00 was granted to the organization to help recruit students for approved occupational therapy schools. In 1955 a grant of $34,150.00 was awarded to continue recruitment activities and to undertake a study of the occupational therapy curriculum in relation to rehabilitation objectives.

Also in the field of occupational therapy, since 1948, National Foundation grants have been made to the University of Southern California to provide a clinical training supervisor for the occupational therapy school and to devise equipment and teach the occupational therapist the principles involved in caring for respirator patients.

It seems appropriate to note here that rehabilitation is not a new idea for occupational therapists. The profession's first publication was called "Occupational Therapy and Rehabilitation."

Occupational therapists are also benefiting from the National Foundation's fellowship and scholarship program which since 1939 has awarded 4,297 long-term and 1,911 short-term awards. Seven of the long-term awards were given to occupational therapists to prepare them for teaching careers. Ninety-seven occupational therapists received short-term fellowships to study the care of poliomyelitis patients.

But the award program also assists other professional groups. Post-doctoral fellowships are currently available for postgraduate study in the fields of medicine and the related biological and physical sciences, preventive medicine, rehabilitation, orthopedics, management of poliomyelitis, and psychiatry. Fellowships are also given in the social sciences, health education and in the field of teacher-training for physical therapists and occupational therapists.

A limited number of fellowships are available to medical students who have at least eight weeks of consecutive time for study in the following fields: research in the biological and physical sciences related to medicine, rehabilitation, and public health and preventive medicine. These fellowships are intended to give qualified students opportunities to ascertain their interests and abilities in selected fields under the direction of ex-

*Director of Professional Education, The National Foundation for Infantile Paralysis.

perienced investigators early in their careers. As of December 31, 1956, 1,163 medical students had participated in this program.

Though candidates apply to the National Foundation, they are reviewed by committees composed of representatives from the various groups. Selection is made on a competitive basis by the appropriate committees, and the National Foundation accepts these decisions as final.

Committee members have every reason to be proud of their selection efforts. Many former National Foundation fellows and scholarship recipients are doing outstanding work in research and clinical fields. Others have gained recognition as administrators, teachers and leaders in the professional organizations.

The results of the student aid program are gratifying, but it is recognized that personnel shortages in the various professional fields still exist and will continue to exist for a long time. The patients' needs can be met only through wise utilization of available personnel.

In reviewing its rehabilitation activities in 1952, the National Foundation felt that if patients were to receive benefits from the present advances in the field of rehabilitation, the concept and the basic techniques of rehabilitation should be taught to the medical students and associated medical personnel with whom the physician works and upon whom he depends for the total care of his patient. Representatives of the National Foundation met with the deans of the medical schools of the Association of American Medical Colleges to discuss a proposal to develop a grant-in-aid program to assist medical schools in establishing interdisciplinary teaching programs for their medical students and trainees in related health fields.

The proposal was received with much interest and enthusiasm and in July, 1953, the first grant was awarded. Thirteen medical schools are now participating in the pilot studies to teach rehabilitation.

It is too early to evaluate the program. Yet one cannot overlook the fact that reports from the schools repeatedly indicate that the team approach to rehabilitation resulting from interdisciplinary teaching helps the various disciplines to gain a better appreciation of their responsibilities in rehabilitation planning. It provides a unique opportunity for members of the various medical and medical associate fields to work together and to understand and use the skills of their associates effectively and economically.

Many occupational therapists are participating in the development of these pilot studies through their contributions to rehabilitation service programs and teaching in hospitals affiliated with the medical school grantee programs.

Of no minor importance to the National Foundation's rehabilitation program is the development and use of visual aids. Publications, films and exhibits are used to keep the public informed on organization activities and current rehabilitation trends and practices. A particular function of the division of professional education is to make the latest information on research and patient care available to medical and medical associate personnel. In 1956 over 160,000 pieces of literature were distributed to persons in these categories. Publications and films prepared especially for professional persons are being used regularly in teaching programs in hospitals, universities and professional schools throughout the country. Last year more than 33,420 persons saw the teaching films covering clinical and basic science subjects.

Like the disabled person's individual rehabilitation program, the National Foundation's professional education program is reviewed periodically to determine its effectiveness in attaining program objectives. Activities must keep pace with research and progress in the comprehensive patient care field if the patient is to have the chance he deserves to become an active useful member of society.

While it is neither possible nor practical to measure programs in terms of dollars and cents, it is significant to note that the National Foundation has used $24,900,000.00 of its funds for professional education; $27,800,000.00 has been allocated for research, to prevent the disease, save lives and avoid unnecessary crippling.

The Rehabilitation Center Planning Institute, sponsored by the Conference of Rehabilitation Centers, Inc., was held in Chicago during the week of February 25. Miss Margaret Gleave and Miss Martha Matthews were the occupational therapists on the program. In addition there were twenty occupational therapists in the audience of approximately 200 people representing rehabilitation center personnel.

Proceedings of the institute covered history, development of centers, determining the need for a center, organization and administration planning, staffing, building and equipping facilities, and operational management from a very practical viewpoint. Copies of the proceedings may be obtained for three dollars a set from Mr. William Stearns, Executive Director, Saranac Lake Rehabilitation Guild, 5 Franklin Avenue, Saranac Lake, New York. They are excellent for use in expansion of rehabilitation programs as well as for establishment of new centers.

NATIONALLY SPEAKING

From the President

It is fitting that in this, the long anticipated poliomyelitis issue, the American Occupational Therapy Association give recognition to the contribution that the National Foundation for Infantile Paralysis has made to the care and rehabilitation of the victims of polio and to the prevention of this disease. At the same time we acknowledge with gratitude, that in the development of patient care and rehabilitation techniques, in the preparation of skilled personnel to administer treatment, the National Foundation has been a true benefactor of all disabled individuals, of all mankind.

Dr. Catherine Worthingham, director of the National Foundation's professional education program and a former Fellow on our Board of Management, has an excellent article in this issue, "Professional Education Program Aids Rehabilitation Planning." Her explanation of the premise on which the Foundation bases its patient aid program, "the disabled person like every one else should be given a chance to live an active useful life," her delineation of the concurrent development of its patient care, education and information programs in general and as they relate to occupational therapy, again reminds us of the breadth of thinking and understanding the leadership of the National Foundation brings to the fields of rehabilitation and rehabilitation education.

The American Occupational Therapy Association has always been concerned with the recruitment of suitable candidates in sufficient numbers to meet the demands of a rapidly expanding field. To do this it is necessary to maintain a comprehensive public information program as well as a continuous orientation program for potential occupational therapy students. This is an expensive operation and one impossible to achieve within the confines of our annual budget. Since 1954 the National Foundation has made grants for recruitment to our association which total almost $60,000. These monies have enabled us to maintain our recruitment program which is now complete enough to be telling. The annual reports of our director of recruitment and publicity make this quite evident. We appreciate this generous support which has, we believe, proved to be mutually beneficial. Because of the effectiveness of this project, we have again submitted a recruitment grant request to the Foundation. We have no reason to suppose it will not be made since the Foundation is as interested in the project as we.

Any medically allied profession is as strong as the education of its students and as valid as its opportunities for advanced study permit. Both relate directly to the number and quality of its teachers and the availability of good clinical practice centers. Our profession has been fortunate in the caliber of our educators on both the didactic and practical level. However, as with other professions in the health field, demand has far exceeded supply. This is understandable in view of the pressure of treatment demands and the cost of advanced education programs of this type, which are not easily entered into by the institution or the individual. Both must be influenced by financial considerations. The National Foundation has provided leadership and funds to assist in overcoming this drawback to the establishment of short and long term advanced courses, and has made it possible for qualified occupational therapists to take advantage of these opportunities. Particularly worthy of note at this time are the fellowships offered to occupational therapists who are interested in teaching.

To maintain sound educational programs and dynamic treatment practices a profession such as ours must keep abreast of new developments in the medical field, and have a means of exchanging ideas with allied groups. The conference of national organizations, conducted annually by the Foundation, has aided the participants toward better integration of their particular services in the area of patient care and public education. As a direct result of our participation, we have received scholarship grants from the Daughters of the American Revolution, obtained specific publicity from the Woman's Auxiliary of the American Medical Association, and have had an opportunity to inform key national organizations of our recruitment needs.

Other organizations, both publicly and privately funded, have aided us immeasurably in our organization's expanding professional development program; the Kellog and Grant Funds, the United Cerebral Palsy Associations, the Office of Vocational Rehabilitation, and the National Institute of Mental Health, to list a few. We recognize and fully appreciate their assistance, but this is our "Polio" issue and this is our time to say thank you to the National Foundation for Infantile Paralysis.

We know that the future will continue to brighten for those sick in mind or body. We

also know that through our own efforts and with the continued mutually valuable support of such organizations as the National Foundation, we will be able to meet the challenge of our increasing responsibility in the areas of patient service and professional education.

—RUTH A. ROBINSON,
Lieutenant Colonel, AMSC
President

EDITORIAL

PRESCRIBING

Can occupational therapists prescribe? With one exception, no. But that exception is a vital one today and mighty important to every occupational therapist. Of course occupational therapists can't prescribe for patients but every physician in the country is urging and expecting occupational therapists to prescribe for themselves by arranging to receive their three Salk vaccine shots for polio. As part of the medical team all occupational therapists under the age of forty should voluntarily request the inoculations necessary to safeguard against polio.

The Salk vaccine is a protection for occupational therapists as well as for lay citizens and it behooves us to follow the advice published nationally. The National Foundation for Infantile Paralysis and the United States Department of Health are urging everyone under forty to become immunized against polio. Therefore occupational therapists should be among the first to volunteer for the shots now that adults as well as children are included in this campaign to protect everyone against this crippling disease.

If we do not set the example along with the other medical workers, the public will question the value and effectiveness of the vaccine. We cannot afford to be diffident in such a vital matter. To date the immunization of infants and children of grade school age has been good, but there is a serious lag among teenagers and young adults in availing themselves of the same protection.

Polio may no longer be a threat to those vaccinated, but their protection is no guarantee for the unimmunized. According to Mr. Basil O'Connor, president of the National Foundation for Infantile Paralysis, only "one out of every six Americans between 20 and 35 years of age has even been started on inoculations against polio." Let us hope no occupational therapist is guilty of being so lax as to disregard his own health while attempting to contribute to the physical and mental health of his patients.

This is the biggest health movement ever undertaken and certainly deserves our commendation and participation. Today is none too soon. If you haven't received your first vaccine shot, do not procrastinate longer. Arrange now for your series. The campaign needs your help, and receiving the vaccine shots expresses your faith in the program and is the most effective help you can give.

BELL GREVE

Few things in life carry more value than friendship, therefore it is with regret that the American Occupational Therapy Association learned of the death of a true friend, Miss Bell Greve, on January 9.

Miss Greve, a social worker, was a supporter and promoter of occupational therapy in Cleveland, Ohio, where she worked for many years and her encouragement and interest made her well known to occupational therapists throughout the country. For the past ten years she was secretary-general of the International Society for the Welfare of Cripples.

Miss Greve was one whose personality and influence will be missed but whom occupational therapists will always remember with humble pride for her contribution and support to occupational therapy.

CONGRATULATIONS

Greetings are sent to the English Association of Occupational Therapists celebrating its twenty-first birthday this year. May the next twenty-one years be even more successful to our sister association.

There are nearly 1800 therapists who are full members of the English Association of Occupational Therapists and there are seven recognized training schools. The Association conducts an examination and awards a diploma to members qualified.

We send the English Association congratulations for the gains made in their professional development and know their future is even brighter.

In Memoriam

Mrs. Marguerite Cramer
Tallahassee, Florida
Deceased, November 13, 1956

Miss Florence W. Fulton
Wayne, Pennsylvania
Deceased, March 17, 1957

PEOPLE YOU SHOULD KNOW

Editor of the Month

CHARLOTTE D. BONE, O.T.R.

A Biographical Sketch
by
ELIZABETH COLLINS, O.T.R.

Credit for this special issue of the *American Journal of Occupational Therapy* is due Miss Charlotte Bone who, acting as editor for the month, compiled the material for the polio issue. As the first editor of the *Journal,* this task was not a new one to Miss Bone and was done with her usual imagination, ingenuity and enthusiasm.

Charlotte, or "Chick" as she is known to many friends or "Bone" to many of her admiring former students, is a New Englander by heredity and a present Texan by choice. Her exposure to the medical profession began at birth as the daughter of a practicing physician and later as a youngster who spent many months as the recipient of medical treatment for osteomyelitis. Her imposed limited activity provided an opportunity for the recognition of her artistic talents and after spending a year at Skidmore College she enrolled in the Pratt Institute in New York. Later as the director of an art school and the museum exhibitor of many fine pieces of silver work she gained success and recognition for her talents.

Her early interest in and knowledge of the medical profession, quiescent for some time, began to uncover itself and by 1942 Charlotte had enrolled in and graduated from the Boston School of Occupational Therapy. The same year found her as assistant director of occupational therapy at the Robert B. Brigham Hospital in Boston where she remained about a year. Her interest in teaching and her knowledge of treatment media and kinesiology qualified her for a position as an instructor at the Boston School to whose faculty she was appointed in 1943. Her enthusiasm and interest in occupational therapy led her to accept, in 1947, the first editorship of the *American Journal of Occupational Therapy,* little realizing the tremendous task awaiting her. Her teaching at the Boston School continued concurrently with this newly acquired position and her apartment, previously a relaxing comfortable home, became a busy editorial office. No one visiting her during this time could be unimpressed with the vigorous and ardent achievements unfolding before them. Her spirit both in the class room and for the *Journal* were highly contagious among her friends and students, and it was in 1949 after resigning from the B.S.O.T. faculty and the editorship of the *Journal* that she and her contagious enthusiasm moved to Texas. Charlotte became the director of occupational therapy at the Warm Springs Foundation in Gonzales, Texas, and in 1950 she was appointed director of occupational therapy at the Southwest Polio Respiratory Center at the Jefferson Davis Hospital in Houston.

With intense interest in any professional task she undertakes and with her ability to converse about them, Charlotte is quickly able to spread the sound philosophy of OT. Her interests are varied and her talents are many. Anyone who has been a guest in her home has always found her to be a warm and gracious hostess as well as a masterful cook of unusual and delicious dishes. Her newly acquired home, her work and the chairmanship of the committee on respiratory centers in addition to her many friends keep her a more than typically busy OT.

REPRINTS

Reprints are convenient for teaching files in hospitals. If you would like a few copies of articles appearing in this issue, your order will be honored if enough requests from others are received to total the minimum order of 50 for an article. Place your orders before the 25th of the month of publication.

FEATURED O.T. DEPARTMENTS

THE OCCUPATIONAL THERAPY DEPARTMENT

Ortopaedisk Hospital
Aarhus, Denmark

Ingrid Pahlsson, O.T.R.

The major part of the care of the physically handicapped in Denmark is provided by the Society and Home for Cripples, an institution where all aspects of rehabilitation are taken into consideration, medical as well as social and vocational. For realization of these goals the institution has two orthopaedic hospitals, one in Copenhagen, the other in Aarhus (the second largest city in Denmark), four orthopaedic clinics, a boarding school for handicapped children, rehabilitation centers for polio and cerebral palsied patients, a vocational school, and others.

Ortopaedisk Hospital in Aarhus has 130 beds, divided into one ward for children and three wards for adults. The hospital is modern, it was opened in 1940; however, the rapid development and expansion in the fields of orthopaedics and Rehabilitation have caused some departments to outgrow their premises. Among these is the occupational therapy department where the lack of adequate space has been a rather severe problem for some time—a situation that is by no means unique. But now it looks as if an improvement were within reach; at the moment plans are being made for adding a special OT building to the hospital.

The staff of the occupational therapy department consists of the director and three trained therapists and twice every year three students from the Danish OT School come for their four months clinical training in orthopaedics. For children of school-age, long hospitalizations cause undesired interruptions in their school-work. In the old days the occupational therapists had the responsibility of teaching school-subjects, but now we are fortunate to have a teacher as a most valuable member of the staff of the department.

Occupational therapy as a treatment method is fully accepted by the medical staff of the hospital, and between the occupational and physical therapy departments there is a close and stimulating collaboration. The chief-surgeon goes on ward-rounds every other day, these rounds are attended also by the directors of PT and OT; on those occasions prescriptions for treatment and reports on progress are given.

All kinds of orthopaedic conditions are treated at the hospital, but during the course of the last two years there has been a marked change in the types of disabilities. We have had practically no fresh polio cases, and that of course leaves its mark on the work that is done in the OT department. In 1952 and 1953 Denmark was struck by extremely severe polio epidemics and then we had many patients who worked with slings, typed with a mouthstick, needed gadgets for activities of daily living, etc. Fig. I shows an adaptation for a polio patient. Both his legs were unaffected, his right upper extremity was completely paralyzed, his left upper trapezius was 3, his left wrist-flexors and -extensors as well as finger-flexors and -extensors were 3, the rest of his shoulder, arm and finger muscles were O. His neck-flexors were 4, and he was able to type with a mouthstick, but we also wanted him to be able to write longhand. Since the patient was not able to move his hand from left to right in writing, he had to move the paper. This was done by moving his legs and feet. Strings were attached to his shoes, went through pulleys and were fastened to the paper by bulldog clips. The patient's arms were supported by slings, and as he was unable to grasp the pencil, he used a plastic pencil holder.

Fig. I. Adaptation for writing for polio patient.

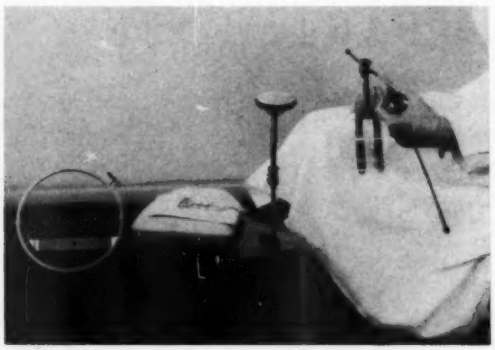


Fig. II. Devices for one-hand knitting, mending and embroidery.

In-patients as well as out-patients are treated in the department; of the in-patients some are seen on the wards and some come down to the small workshops.

The objective of the occupational therapy that is given can briefly be divided into two major groups: functional retraining and diversional or, as we prefer to call the latter, "preventive OT."

Many words have been said and written pro and con on the subject of crafts as therapeutic media, and many more will be said and written. So many factors have to be taken into consideration; one of the primary ones is the cultural background and traditions of the country concerned. Denmark has a homogeneous population that has not had to struggle and fight for life and existence the way that was necessary for the pioneers on the North American continent. Like all Scandinavia, Denmark is a country with old and—what is important in this connection—still vigorous traditions for all kinds of craftwork: weaving, embroidery, lacemaking, basketry, metalwork, bonework and woodwork. We have inherited a treasure of old patterns that has survived industrialism and that through the centuries has been adapted to fit the need and the taste of the living generation. That is why we find it natural to use crafts to the extent that we do. Most patients enjoy it, and the easy adaptability of tools and techniques is a well-known argument for justifying crafts not only as diversion but also in functional occupational therapy.

It is my impression that most self-help gadgets for activities of daily living are international, therefore I don't intend to tell in detail of what we have. Among the self-help gadgets that we have found very useful is one apparatus with interchangeable attachments for mending, embroidery and knitting with one hand; the different parts screwed to a stand that can be attached to a table top or to a metal hoop that fits just

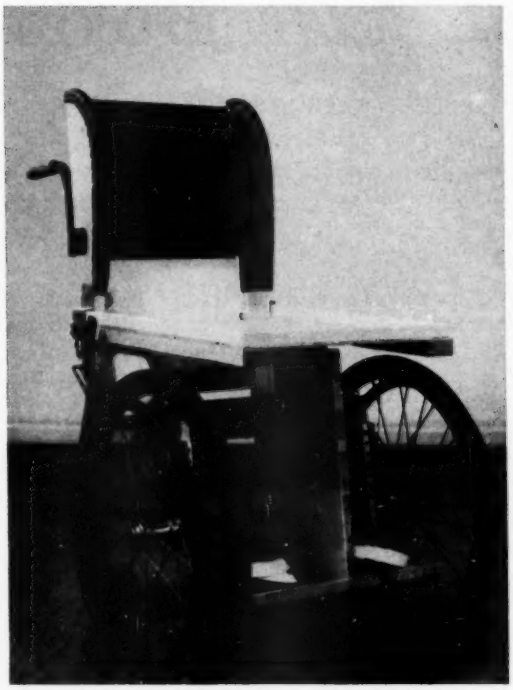


Fig. III. Wheelchair for severely handicapped cerebral palsied patient. Notice the brake (placed on patient's side), lapboard, adjustable footboard and heavy handrims.

above the patient's knee. (Fig. II.) At present we don't have a kitchen for the retraining of handicapped housewives, but this lack should be relieved in the projected new building. However, we do have some kitchen gadgets and have been able to advise patients needing help in that respect.

One activity that we utilize frequently is typing, both for improvement of co-ordination, general increase of range of motion and muscle strength of the hands and fingers, and for the simple reason that it is a skill that is useful to know. Many patients who are bed-ridden for a long time learn to type while flat on their backs in plaster.

The two orthopaedic hospitals in Denmark are centers for diagnosing, evaluating and treating cerebral palsy. That is why, in spite of the relatively low incidence of cerebral palsy in Denmark, we have quite a number of cerebral palsied patients, mainly youngsters. As a most valuable adjunct in the evaluation both of initial status and of progress, we make extensive use of the Hartwell Motor Age Test which, through the courtesy of Professor R. Plato Schwartz, Rochester, N. Y., we received in 1953.

In the treatment of all patients, but especially the cerebral palsied, we emphasize correct posi-

tioning. We have found that the patients make better use of their hands if they have the proper support in sitting. For the severely handicapped cerebral palsied, individual wheel chairs are built: a regular wooden chair is placed on large wheels and equipped with brakes, a lapboard, etc. (Fig. III.)

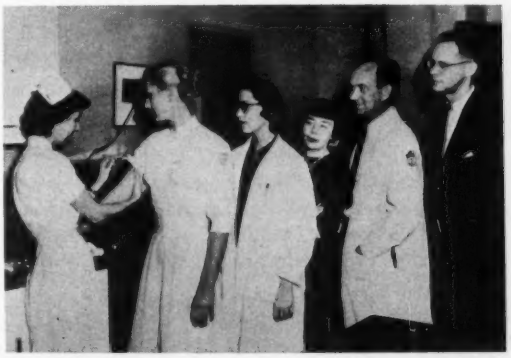
Two years ago the OT department got an unusual, but most charming and inspiring addition when the hospital opened a nursery school for cerebral palsied out-patients. The nursery school is located in a building to which there is a separate entrance, we feel it is an advantage that one does not have to pass the main hospital entrance to get there, since the children are not sick and we refer to them as pupils, not patients. The youngsters are picked up by the hospital's station car in the morning and are brought back home in the afternoon. They spend the day from 9:00 A.M. to 3:00 P.M. at the nursery school, and their time is divided between play under the direction of a nursery-school teacher and treatment. Of course they also get their noon and afternoon meals and a nap. There is a large playroom with direct exit to a nice garden on the same level. Occupational and speech therapy are given in a small treatment room adjacent to the playroom, and for physical therapy the children go to the general PT department.

Much more could be said about the nursery school and about the philosophy of treatment and education of the cerebral palsied, but that really is a topic with no limits, so I'll only mention a few points. We try not to shelter the children too much; we have adapted the environment to meet their needs, but not to overprotect them. We try to give them the experiences that normal youngsters have: a walk in the street, shopping, trips to the zoo, parties. According to their abilities they all have small responsibilities, putting the toys back in place when the games are over, running errands, etc. We try to make them as charming as possible, try to teach them good manners and the comfort of being well groomed, all things that will make it easier for the children to be accepted by other people later in life.

One of the occupational therapists visits the patients in their homes. By car she covers an area of approximately four square miles in the middle part of Jutland. In some cases she actually does functional work, but the majority of her patients are chronic, severely handicapped persons who get invalids' pensions. The objective of the treatment for those patients is to keep up their morale and to help them in making articles that they can sell and thus earn a small supplement to their pensions.

In the occupational therapy department of the Ortopaedisk Hospital in Aarhus we all look forward to welcoming many of you here when you visit Denmark in 1958 to attend the World Federation of Occupational Therapists' second international congress.

Marjorie Fish, executive director of the American Occupational Therapy Association, chats with Basil O'Connor, president of the National Foundation for Infantile Paralysis, and Dr. Jonas F. Salk, who developed the Salk vaccine under a March of Dimes grant. This picture was taken during a conference of national organizations sponsored by the National Foundation for Infantile Paralysis at the Waldorf-Astoria Hotel, New York. Some 85 leaders of national health, civic and fraternal organizations attended.



Doctors, nurses, occupational therapists, physical therapists and medical social workers believe in protecting themselves (as well as their patients) against poliomyelitis. At New York University-Bellevue Medical Center, Edith Wallace, registered nurse who has had her shots, administers Salk vaccine to (left to right): Ann Marshall, physical therapist; Barbara Jo Serber, M.D.; Lynne Riehman, medical social worker; Paul R. Clark, occupational therapist; and Douglass Thompson, M.D.

—NFIP photo.

Conference Plans Oct: 21-25

Plan now to come to Cleveland!

The Carter Hotel will be headquarters.

The plan of the institute conference will be new and different.

This year, as a result of an O.V.R. grant, it has been possible to combine the institute with the conference to give all who attend a new and different week.

The activating committee used the comments from the 807 replies to the questionnaire sent out earlier, plus the expressed recommendations of the 1955 and 1956 O.V.R. sponsored institutes, the AOTA Institute and the N.I.M.H. psychiatric project.

Content Outline for the Week

To give you an early outline of the "Week," four units have evolved from your suggestions; these are:

1. Monday: *A Techniques Fair* to be patterned on the regular "Fair" idea which will give everyone an opportunity to see and hear latest methods within their own disability area, as well as exchange ideas, and shop around to cover topics of their own choice.

2. Tuesday: The topic, *The Use of Group Techniques,* will be presented by an effective speaker who will give the principles of group techniques. Following a practical application by demonstration, the group will divide into small participating units composed of heterogeneous members and trained group leaders.

3. Wednesday: *The Use of Self* will be studied. This day's sessions will furnish a learning experience and will be introduced by Dr. Jerome Frank, renowned group psychotherapist from John Hopkins University. Again plans include small group sessions which will give all members the chance to participate.

4. Thursday: *Patient Evaluation* will be the topic of a panel of occupational therapy "users" emphasizing their needs in terms of evaluation which will be furnished them by occupational therapists. Following the presentation, the audience participants will form into small homogeneous specialty groups.

These units, all planned for various types of experiences to achieve the content requested by the membership, contain: (1) Across the board subjects (elements common to all O.T.R.'s). (2) An institute. (3) New developments—ie., "The Fair." (4) Individual participation in pre-conference planning and during the institute-conference.

Summary

The activating committee will have the responsibility for activities of the entire week. Therefore the work of the permanent conference chairman and local conference chairman and committees are being closely integrated with the coordinator and national office of the American Occupational Therapy Association. Further details of this stimulating week will appear in forthcoming Newsletters, and issues of the American Journal of Occupational Therapy.

W.F.O.T. OFFICERS

The American Occupational Therapy Association is honored to have Clare Spackman, O.T.R., elected as president of the World Federation of Occupational Therapists. Miss Spackman has been the delegate from the United States and has served as treasurer of the U. S. dollar areas. Miss Spackman, elected for a five year term, replaces Miss Margaret Fulton, Aberdeen, Scotland, who served as the first president of the organization founded in 1952.

Other officers elected at the Council meeting were: first vice-president, Miss Ingrid Pahlsson, Aarhus, Denmark; second vice-president, Miss Dulcie Goode, Victoria, Australia; secretary-treasurer, Mrs. Glyn Owens, Liverpool, England; assistant secretary-treasurer, Mrs. Thelma Cardwell, Toronto, Canada.

The next conference of the Federation will be held in Copenhagen, Denmark, August 11-16, 1958. That is not far away and all who can possibly make the trip should start planning now. The American Express Company can provide you with details of the conference if you do not have a travel agent. A large United States delegation

would pay tribute to the honor the Federation has bestowed on us by electing one of our delegates as their second president.

NFIP FELLOWSHIPS

The National Foundation for Infantile Paralysis offers a limited number of fellowships available to occupational therapists interested in teaching occupational therapy.

The fellowships are awarded for periods of one to three years and stipends range from $200 to $350 per month depending upon previous education and experience.

To date seven fellows have completed teaching fellowships. They were asked to write a brief resume of their program evaluating what this fellowship has done to enhance their preparation for the teaching field. Excerpts from these letters are published so that occupational therapists considering applying for a fellowship can more effectively evaluate the program.

* * * *

The teaching fellowships available through the National Foundation for Infantile Paralysis are as broad in scope, and as specialized, as the individual applicant wishes them to be. With this in mind, and to fit my own needs, my program was planned around three major areas: clinical experience, administration, and the master's degree program.

. . . . . .

I have received my master's degree in guidance and student personnel administration . . . I should like to point out, specifically, certain areas of my graduate work which should be most helpful in teaching in an occupational therapy school: curriculum development, community agencies and their part in guidance, group dynamics, counseling techniques, tests and measurements, occupational analysis.

Everyone's needs are not the same. My program was planned to fit mine. It has been an intensive one and a most enriching experience. This is a very meager report for two such exciting, rewarding years. But I hope it may given other therapists, who may be thinking of going into the teaching field in occupational therapy, an idea of the wonderful opportunity that awaits them.

We are all well aware of the tremendous demand for therapists, and the need for more schools. Through the generosity of the National Foundation for Infantile Paralysis we have the opportunity to prepare ourselves for these responsibilities, and in our teaching to continue to maintain the high standards of our schools for occupational therapy.

—Helen Rothwell, O.T.R.
Columbia University

* * * *

The best feature of the NFIP teaching fellowship program as far as I was concerned was its flexibility. As my original training was in the field of education before entering OT, and as I had already taught at the college level, I would have been distressed if I had not been permitted to devote all of my time to subject-matter. I found that their committee was most reasonable and willing to let me select a program which fitted my individual needs.

The benefits of the year of study were many. I don't know how much value any mention would be as each graduate student has such individual interests and needs. The important things to me were:

Opportunity to study principles of student counseling . . . Opportunity to study principles of supervision as expressed by contemporary "experts" in this general field . . . Opportunity to review and strengthen my knowledge of anatomy-kinesiology. Opportunity to strengthen my knowledge of abnormal psychology and clinical psychiatry as I have not had sufficient background in this area to handle intelligently the school administration problems relative to it.

—Shirley M. Bowing, O.T.R.
University of Southern California.

* * * *

I am happy to tell you some of my experiences as an NFIP Fellow because I am convinced that they were an indispensable part of my preparation for teaching.

I was able to expand my background materially. Although my studies were concentrated in the field of physical disabilities, I had time to take advantage of offerings pertinent to other fields . . . I had the opportunity to study problems of college teaching and in one of my courses prepared and presented a teaching unit.

Perhaps the highlight of my year was an opportunity to do independent study. Part of this time was devoted to the preparation of a thesis with its concomitant research and the remainder was geared to my future teaching objective. For example, one of the projects which I undertook was to make a critical analysis of all the kinesiology and anatomy reference works in the university libraries from the standpoint of their utility for students and practicing therapists. From this I gained a valuable tool for teaching as well as much new knowledge and a whetted appetite for investigating current controversies.

. . . . . .

Perhaps the most important result of the fellowship from both a personal and a teaching standpoint was an intellectual awakening gleaned from exposure to such an institution after too long confinement in one small, specialized field.

—Alice E. Lewis, O.T.R.
University of Southern California

* * * *

As a recipient of one of the NFIP teaching fellowships, I feel that I have gained immeasurably in relation to the basic significance of being further qualified and prepared in my subject area of teaching . . .

Too much emphasis cannot be placed upon the urgent importance of graduate study for those occupational therapists who are engaged as instructors on the teaching staffs in our professional schools. Meaningful teaching must necessarily be based upon, and is inherent in, ever widening circles of knowledge, both within and without our area of specialization.

. . . . . .

The growth of any profession or discipline is contingent upon the continuing professional growth of its individual members, both in the refinement of present knowledge and the acquisition of broader educational experience.

. . . . . .

Occupational therapy is no longer a simple concept with one tangent, and an isolated segment operating in a

vacuum. Today it interacts with many other disciplines at all levels of administration and operation.

. . . . . .

In summation may I again reiterate that this NFIP teaching fellowship has been a great privilege and a most constructive, stimulating educational experience. To my many past students, who have been my real incentive for the desire for improved teaching, may I say, that as a result of this year of graduate study, I hope to have acquired greater depth of understanding, and the ability to interpret more clearly, concisely and meaningfully some of the basic concepts of my profession.

—Marguerite Abbott, O.T.R.
Columbia University

* * * *

My academic work provides for a major in guidance and counseling. Courses in guidance, the counseling interview, and the use of tests in counseling will prove of benefit both in working with students and in considering evaluation and treatment of handicapped persons. Courses in statistics have provided me with a background for research and for the study of test instruments currently in use in occupational therapy. Other courses have given me an understanding of the organization and administration of institutions of higher education, and of teaching and counseling methods. I also attended summer school at Harvard University for further work in statistics and in reasearch, and have been accepted there for work toward a doctoral degree at a future date, with particular emphasis on guidance of the handicapped.

. . . . . .

I have found the fellowship program invaluable in giving me both the time and the opportunity to develop and crystallize my concepts of the function of occupational therapy in various fields of medicine. Furthermore, I have been able to acquire a greater medical knowledge and a broader understanding of other fields which bear a relation to occupational therapy and with which therapists should be familiar. The Foundation's broad concept of the program and the recognition that the therapist himself and his advisor are the ones best qualified to determine the program for each individual use . . . contributed immeasurably toward my preparation for the teaching of occupational therapy.

—Alice Jantzen, O.T.R.
University of Pennsylvania

* * * *

Through the assistance of a teaching fellowship of the National Foundation for Infantile Paralysis, I have been able to continue graduate study at the University of New Hampshire where I had begun work toward my master of education degree.

Since completing the required courses, I have been practice-teaching this semester in the occupational therapy department at the University under the direction of the supervisor of the OT curriculum and members of the education department.

Before beginning practice-teaching and after having completed the required courses in the education department, I spent several months in the clinical field of occupational therapy. During the summer months my program focused on prevocational exploration and appraisal at the Hartford Rehabilitation Center. I was able to work with other therapists in the field and to begin a research project on prevocational appraisal with the assistance of the staff of the Rehabilitation Center.

The next clinical experience on my program was a three-month post-graduate course for occupational and physical therapists in the treatment of poliomyelitis. This course was given at Georgia Warm Springs Foundation.

. . . . . .

Assistance provided by the teaching fellowship has been threefold. First, the freedom to plan a self-tailored program to meet the needs of the individual in preparation for teaching. Next, the opportunity to submit a planned program to a committee with broad experience in both medicine and education. Finally, through financial assistance, the opportunity to follow the program to its fulfillment—that of preparing oneself to meet the present and future needs of teaching in a rapidly growing profession.

—Charlotte Ritter, O.T.R.
University of New Hampshire.

I Had Polio . . .

(*Continued from page* 130)

the young student I use only a pointer in my teaching.

I never ask someone to help me unless it is really necessary, or I am in a hurry, or I know he or she will be pained by watching my movements. The appearance of normalcy gives a deep personal satisfaction, and the striving toward it, of course, is partly due to vanity and partly due to the natural need to do things for oneself. Sometimes assistive devices would make the work easier and yet I don't use them. I think this is no more and no less sensible than wearing high heels instead of low ones when working or walking. But when my chief interest is in getting a job done right away, I use everything I can find that will help.

Where the task I perform is useful, satisfying, and can be accomplished with reasonable efficiency, all the necessary maneuvering is worth the time and effort; where the task can be done easier, faster and better by someone else, and there is no value in having me do it personally, it is not worth the effort. Since I have come to this realization, my problems have been simplified and I find in the words of John Galsworthy, "A niche of usefulness and self-respect exists for every man however handicapped."

Orthetics . . .

(*Continued from page* 142)

dressing problems. One manufacturer[13] is now making dresses that can be put on while sitting in the wheel chair.

If endurance is of major importance and the patient does not have a great deal of reserve, it may not seem practical for the patient to wear himself out trying to get dressed. However, some small effort should be continued as that which may seem impossible for the patient to do today may eventually become very easy. Knowledge that he can dress himself if the need arises is im-

portant to the patient, even though he does not have to do it every day.

CONCLUSION

Various ideas have been presented concerning the use of orthetics in the care and rehabilitation of the poliomyelitis patient. In addition to an understanding of the physical and mechanical features, the therapist needs to know the patient and be aware of his general intelligence, psychological adjustment, his ability and desire to learn, and also his home situation. All of these factors have a bearing on the type of program possible, the progress, and the success of the combined efforts toward rehabilitation.

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SOURCES OF SUPPLY

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2. Guardian Latex Products Co., 3030 East Olympic Blvd., Los Angeles 23, Calif.
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Letters

Dear O.T.'s:

It is hard to believe we are 40 and that in October, 1957, we meet in Cleveland for our 37th annual get-together. It is an exciting time in our life and the type of institute-conference planned indicates our "coming of age." Get out your calendar and mark the dates, October 21-25, because we want to see you at the Carter Hotel that week.

With the ice breaking on Lake Erie, the spring thaws have permitted the mail boat to come through at last. With it are some scoops we want to share with you.

Believe it or not, the affair begins with a "Kaffee Klatsch." Here's our chance (after registration) to meet the "wheels." Incidentally, pre-registration is being encouraged this year. You will help us a lot by doing it, and besides, you can enjoy a second cup of coffee.

Speaking of wheels reminds us of a quote from a hospital bulletin board, "Blessed are they who go around in circles for they shall be known as wheels." If this is the case, we'll all be wheels by the end of the week. The plan to let us go in circles is self-evident. For example, we'll get used to moving at the New Techniques Fair, for here we will all have a chance to hear what is new in our own disability area, as well as shop around for the latest in programs all over the country. Tuesday and Wednesday we will move into circles of ten that will broadly represent the profession. (The Carter Hotel has lots of round tables that seat ten each, so we may as well use them.) Here we will learn the group process techniques that will help us on the job and the use of our personalities in working with patients. Thursday's unit on patient evaluation will bring us back to our special interest groups.

Those are the big subjects. The business meeting, this year, will be on Tuesday night. In fact, Tuesday will be a big day since the school directors voted to continue the schools affair which will happen that noon. Of course, there will be the Ship's party and banquet on Thursday night.

Most noons are free for a two-hour block of time, so let's get the old crowd together for a relaxing reunion one day.

Another innovation will be the early opening of the exhibits Monday evening. We'll have more time to peruse them and best of all they will open with flourish and ceremony. Let's be on hand for this for we all want a chance at the nifty door prize.

Since you have not visited Cleveland for a long time, be sure you plan to stay through Friday afternoon for tours of some of the local occupational therapy departments.

The grant received by our national association from the O.V.R. is making this year's institute something special. With this assistance, we are able to have some really top leadership for the institute units of the week.

We in Ohio are thrilled that this "new look" for our annual institute-conference will come about in the Buckeye state. Fly to Cleveland next fall and we'll guarantee an en-*light*ening program.

Sincerely,

THE BUCKEYE PUBLICITY COMMITTEE

P.S. Sorry about this corny ending, but had to tie it up some way and remind you that Ohio is the home of light and flight. Couldn't figure out any other way.

To the Editor:

Redkey's article in the February issue proposes addition of a service which is vitally needed to make rehabilitation as comprehensive in fact as it is in modern philosophy. If one subscribes to the broad theory of the official definition, one can scarcely disagree with the need for prevocational services and therefore the desire and effort to add them, thus meeting more patient needs than are presently being served.

I cannot, however, agree with the author's recommended method of providing prevocational services in a rehabilitation center or program as there seems to be at least three pitfalls in this suggestion which bear examination.

The first of these is the rather obvious duplication of some facilities, equipment and personnel that would be required in the establishment of a separate prevocational unit such as is outlined. Occupational therapy units in both hospital and rehabilitation center programs have the potential for developing the indicated prevocational services. To varying degrees country-wide, but to a considerable degree in selected centers which have already faced and tried to meet the prevocational needs of patients, occupational therapy has geared its activities along more vocationally-related lines. This semi-transition from exclusive use of such traditional media as the creative and manual skills, although currently receiving emphasis and impetus through the increased national interest in rehabilitation, actually started many years prior to the modern philosophy and legislation. In the field of psychiatry, earlier and more extensively than in other disability areas served by occupational therapy, the use of industrial placement as a facet of occupational therapy is well-known. During the war years, the use of power tools and machinery was incorporated into occupational therapy education and practice. The 1947-56 volumes of the *American Journal of Occupational Therapy* have included twenty-six articles specifically related to the role of occupational therapy in the prevocational area. And in many programs where the most severe vocational disabilities have been treated: i.e., service and veterans' hospitals, Goodwill Industries and comprehensive community rehabilitation centers—occupational therapy's use of prevocational activities has been quite extensive, for example through the simulation of occupational skills and patterns required for the clerical, nonskilled, semi-skilled and skilled job families. At least two factors have limited this development in occupational therapy: failure on the part of the profession to implement more extensively the basic philosophy of its scope of services which, from the earliest definitions of this discipline, have included "prevocational explorations"; and secondly, the demand for all available personnel in medical treatment programs which, in itself, reflects our general cultural inattention to the problems of carrying rehabilitation through the all-important vocational phase.

A second challenge to Redkey's proposal may be directed toward his suggestion that "it would appear that the best opportunity for recruiting the needed prevocational personnel lies in the field of industrial arts." From the point of view of available numbers, which is the apparent basis of suggestion, this can scarcely be denied. As he has clearly pointed out, they outnumber our personnel at a ratio of nearly ten to one and their educational facilities annually qualify more than five times the number of occupational therapists graduated each year. But available numbers alone should not constitute the determining factor in offering human welfare services, nor even numbers plus educational preparation, if it is admitted that neither industrial arts teachers nor occupational therapists are presently fully qualified to function in this prevocational area. There is a third factor which is highly significant: that intangible element of service motivation or inherent interest in working with handicapped people or even with the so-called normal person. As Redkey has quoted, approximately half the annual graduates of industrial arts courses select teaching as a career, while the remainder enter industry. This apparent inclination toward other than medical—or rehabilitation—oriented professions has been evidenced in additional ways. Item: since the early 1940's, when "educational reconditioning" programs offered them broad opportunities in Army hospitals and during the twelve-year post-war period, when "manual arts and educational therapy" services of veterans' hospitals multiplied these opportunities, relatively small numbers of this personnel have elected to enter either field. Item: nearly ten years ago, the American Occupational Therapy Association established for industrial arts graduates a special thirteen-month course for full professional certification in occupational therapy. Three such courses were offered (in Richmond, St. Louis and Los Angeles) for a period of three years, and stipends were available for one of them, yet the total number of such personnel electing to so qualify themselves for rehabilitation service was less than one per cent. Other factors no doubt contributed to the relative failure of this program, but it would seem to indicate some lack of interest in or motivation toward a career in rehabilitation on the part of industrial arts graduates.

A third point in question in Redkey's proposal to establish a separate prevocational unit in rehabilitation services is related to a factor which his article clearly recognizes: namely, the severity of both physical and psychological problems in the types of rehabilitation cases we are currently attempting to serve. The wisdom of so separating such a unit from the medical and psychosocial phases of total rehabilitation, while it has obvious administrative and even psycho-vocational advantages, seems open to question. Can such a comprehensive program be successfully compartmentalized? Will there be a "whole man" emerging at the end of this treatment and service line? Or would such a plan further fragment rather than integrate total services? The present gap in rehabilitation, implicit in Redkey's thesis for a vocational unit, exists despite the ideal that "rehabilitation begins with the onset of illness or disability," because the vocational history and future of the patient have not been a matter for concern until physical restoration was accomplished. Nor, apparently, would they be under the proposed plan because vocational counseling and placement personnel find it difficult to make plans for the future until the disability is stable, the handicap definable and the residual vocational capacity evaluated. Subsequent procedures in testing, processing referrals, approving funds, securing training, and other administrative matters often occasion further delay in prevocational and vocational rehabilitation under present and proposed programs.

Occupational therapy could help close this gap by developing and standardizing prevocational testing procedures that would simulate the physical, psychological and vocational requirements of jobs. Such could be accomplished by using vocationally-related activities for establishing representative test situations with norms to determine such capacities as speed, accuracy, dexterity and tolerance; such limitations as range of motion, strength and coordination; and many less tangible factors such as work attitudes and habits, acceptance of supervision, relationships with other workers, personality

traits, intellectual ability, etc. Properly selected to incorporate the elements common to major occupational groupings, it is believed that many of these more vocationally-related activities contain possibilities for therapy as well as for prevocational evaluation; thus, their use as media in this discipline would serve the dual purpose of treatment and testing and, at the same time, bring medical, psychosocial and vocational services closer together.

The foregoing is not intended to imply that the occupational therapist is presently qualified to offer such dual services. He does, however, have such prerequisites as extensive educational preparation in the biological sciences, psychology, medical subjects, the theory of therapeutic exercise and a variety of creative and manual skills. His present deficiencies for this role include occupational information, knowledge of occupational analyses and classifications, ability to evaluate the physical, psychological and vocational requirements of jobs, and particularly the ability to adapt realistic vocational activities to simulate these requirements.

In summary then, I would agree with Redkey's rationale for and estimate of the need for adding prevocational services to rehabilitation, but I would question his proposed means for so doing. By way of counter-proposal, and based on an area of agreement with him, namely, the necessity for further training of any personnel selected to provide prevocational services, Mr. Redkey's consideration of one or all three of the following alternate suggestions for meeting this problem is respectfully requested:

1. OVR-sponsored fellowships for selected industrial arts graduates to acquire the requisite scientific and medical preparation for work in rehabilitation.

2. OVR-sponsored fellowships for selected occupational therapy graduates to acquire the requisite preparation in occupational information and analysis for work in the prevocational area.

3. An OVR research grant to the American Occupational Therapy Association or one of the accredited OT schools to finance an investigative and experimental study designed to select vocationally-related activities suitable for both treatment and prevocational testing purposes in comprehensive rehabilitation services.

Wilma L. West, O.T.R.

To the Editor:

The article by Henry Redkey on "The Function and Value of a Pre-Vocational Unit in a Rehabilitation Center" was read with interest. The reader wishes to direct to Mr. Redkey the following comments and questions in regard to the article's content.

Early in the article, "teamwork" and the "interdependence of disciplines" is stressed as the "heart of the concept of a comprehensive rehabilitation center." This statement, we know is true, however it only becomes a reality when curriculums in the various disciplines include, at a student level, teaching, fostered understanding, and mutual respect for the functions of the component disciplines that make up the team. The basic essentials of core curriculums of all the professional specialties of the rehabilitation team have not to date been established in the field, other than PT, OT, and social work. It is essential to bear this in mind when teamwork is discussed as it influences a unified concept of a comprehensive rehabilitation program which can be implemented with a oneness of purpose.

The American Occupational Therapy Association has in the past and will continue in the future to examine its training programs to meet the needs in preparation of its professional members. However, the vacillating diversified picture presented in the rehabilitation field today by the medical and vocational oriented program demands indicates that self-evaluation can only be of value when the existing preparatory standards for training an occupational therapist are interpreted and evaluated in the light of present and future medical and vocational needs.

Some of the questions that arise are noted below:

1. With the indication in the article that more difficult cases will be sent to rehabilitation centers, does this show a need for a solid background of medical knowledge in order to handle these patients in a pre-vocational unit?

2. With these severe cases, will the medical division director, or the vocational division director, singly or jointly assume the responsibility for these patients?

3. When physiological and/or psychological inadequacies indicate an inability of the patient to work satisfactorily, what is the next step?

4. Would a community be able to support the financial and patient load of a pre-vocational unit directed by a person selected for prevocational supervision?

5. What medical background would be required of the industrial arts person and/or the vocational counselor to bring about the teamwork stressed earlier in the article?

6. Would the occupational therapist, who is already an integral member of the treatment center team, with *additional* vocational knowledge form a natural link to provide pre-vocational information to the vocational counselor.

It is felt that the vocational information requested of the OT is, in many instances, somewhat unrealistic and stems from the lack of a clear concept of pre-vocational exploration. The occupational therapist is often asked to provide a pre-vocational evaluation. It is felt that this evaluation can only be made by the vocational counselor after he has received from all members of the team the pre-vocational appraisals, the aptitude ratings from the psychologist, and selective testing reports from the occupational therapist. The selective testing is done within a job family that is arrived at as a result of the counselor's study of the appraisals, the aptitudes reported by the psychologist, and the job demands as reflected by the vocational counselor. With this information the vocational counselor can then arrive at a *pre-vocational evaluation*, fortified by the team's professional contributions. Selective job placement can then be achieved by the vocational counselor with true team work in action. In summary, the occupational therapist can supply a prevocational appraisal and when the aptitude and job demands are matched and a resultant job family is indicated by the vocational counselor, the selective testing can be reported by the occupational therapist in the areas of personality, performance and physical capacity.

Mr. Redkey has presented broad visionary thinking in his article, which is good. However, the development of a comprehensive rehabilitation program, from a practical view, at present requires the growth of programs from varied origins to meet community needs. Duplication and/or over-lapping of services of agencies, along

with the financing of the programs, must be considered. These varied considerations, as the reader finds, would in many instances negate the proposed function of a pre-vocational exploration unit, as detailed in this article.

Florence Stattel, O.T.R.

To the Editor:

The article, "The Function and Value of a Pre-Vocational Unit in a Rehabilitation Center" by Henry Redkey, *AJOT*, Jan.-Feb., 1957, sounds misleading. The title conveyed the impression that methodology of the pre-vocational units was to follow. Instead, the author presented a timely discussion of the philosophy of such a program. The plea for methodology is covered in a few, brief sentences. In our opinion, the latter consideration is of great importance in planning a pre-vocational unit, and other factors play a subordinate role. For example, the statement, "Pre-vocational activities involve a sampling of actual jobs upon which the patient is tested for both qualitative and quantitative performance" arouses many questions. How do you determine which job tasks to include in such a unit? It is known that it is impossible to include samples from every job which is available in industry. How are the findings from these job samples related to vocational goals? Some will say according to the client's stated interest, but what of the client with equal proficiency and interest in several job tasks? And, is there a clear understanding of the subjective analyses of the staff member assigned to the pre-vocational unit by the individuals who can use the information to counsel and guide the client?

From our experiences, the most satisfactory results have come from following the basic premises of test construction with items of varying degrees of difficulty, clinical observations, and strict adherence to testing protocols. When these procedures are accomplished, we can indeed meet the needs required of a pre-vocational unit.

In regard to staffing a pre-vocational unit, it is far more important to have the unit supervised by mature, skilled adults than by a person from one discipline or the other because there is a volume of people in a profession available in the employment market. Ideally, of course, the unit should be managed by a combination of an occupational therapist and a vocational counselor who are well versed in relating to each other in terms of a common working language in making an accurate and mature interpretation of the medical, social, psychological and vocational problems of a client. We believe that the choice of these two disciplines is well-grounded in that the basic philosophies and activities include the recognition of the need for a pre-vocational center. For the future, it is necessary for schools to orient their training programs toward meeting the specific demands of pre-vocational units. These demands, it seems, can be easily met within the present occupational therapy and vocational guidance curricula.

Satoru Izutsu, O.T.R.
Charles W. Thomas,
Vocational Counselor
Mieczyslaw Peszczynski, M.D.

To the Editor:

Even in a hospital set-up, occupational therapy cannot alone provide meaningful and adequate prevocational services without efficient, realistic and constant support with follow-up from vocational rehabilitation services.

It seems, as pictured by Mr. Redkey, a "comprehensive center" is the utopian situation where all services become most contributory to rehabilitation. This of course, precludes the idea that vocational rehabilitation services can work only at their best in such organizations.

Much is focused on the need to vocationally rehabilitate the severely involved person. It is indeed a noble and human goal, yet realistically, how much more effectively can the vocational counselor meet this test than he is doing now—placement in a work situation, homebound or otherwise. As Mr. Redkey wisely said "vocational adjustments will be more difficult to attain" relative to the severely disabled. Question, what constitutes "severe" disability? Mr. Redkey is quite right in stating the need to develop the potentials of counselors along with projected plans for all contributory services, but where and who are the employers, who is to contact them? Is not the counselor over-worked now? Is sheltered workshop the goal for the "severely" limited? Is more responsibility the answer? Vocational rehabilitation through prevocational evaluation can crystallize its valuable services on realistic information and thereby perform their distinct purpose—direct and counseling employment—speedily and with a greater degree of success.

The suggested administrative set-up points up an added responsibility for vocational rehabilitation—that of prevocational evaluation. Vocational counseling and direction in placement and finding the employer who will hire a disabled person is a supreme job yet to be fully realized. Rather than disorganize and deplete existing potentials, which are growing, in order to create new centralizations of duplications, better to expend funds and energy wisely by capitalizing on present personnel involved in prevocational work by supplementing constructively the vision and background initiative occupational therapists have shown.

It is difficult to appreciate at this time of rapid development the casual passing over of obvious intrinsic qualifications of occupational therapists just because they are in more demand than the numerous graduates of industrial arts. Is this a sound basis and criterion for delegating and assigning personnel to a major service of rehabilitation? Is not industrial art teaching based on training for a vocation while prevocation is utilized for testing and evaluating physical potentials and work tolerance? The medical knowledge acquired by an OT is not from a 6-week or 6-month course of terminology, yet Mr. Redkey feels an industrial arts teacher can gain this knowledge in short order. This is hard to believe. By agreeing that a medical background is needed weakens his premise of choosing a group with greater estimated numerical futures as against qualification and existing potentials already at work . . .

Question: Is prevocational testing and evaluation to become a classroom application or is it to be a physical ability, work tolerance, work adaptations and emotional adjustment determination?

The handwriting is on the wall and has been for quite some years for occupational therapists to read and put into effect. The inroads of progress have been steady and gaining momentum. Ultimate expansion is achieved by support not by division or substitution of lesser qualifications. It is true, the present and future challenges all services, including OT, in meeting this prevocational-vocational emphasis swiftly and judiciously both in school curricula, supplemented training, specialization and acknowledgement and use of existing potentials. It is not by numbers alone but by quality first, success is found. It behooves the vocational rehabilitation services to utilize existing OT personnel and programs and simultaneously for OT to speed up its growth potentials basically inherent in the profession.

Viola Svensson, O.T.R.

To the Editor:

Occupational therapists should enlist the cooperation of a dentist when planning to construct a mouthpiece according to the methods recommended in the article entitled "Liquid Latex Mouthpiece" by Thorpe and Wells in the March-April issue. Even though written in collaboration with a dentist, the article failed to mention that many states (if not all) require the services of a licensed dentist when impressions of the teeth are necessary. The taking of teeth impressions is a highly skilled procedure. Without care, choking or aspiration of the material by the patient could occur and lawsuits might ensue.

The mouthpiece is a workable device but too ambitious an undertaking for an occupational therapist without the supervision of a licensed dentist.

Anita Slominski, O.T.R.

DELEGATES DIVISION

ARKANSAS

Delegate-Reporter, Virginia R. Stockwell, O.T.R.

The Arkansas Occupational Therapy Association concentrated this past year on an all out effort of recruitment. In the fall, instead of our usual program meetings, we worked out a portable exhibit which was used extensively around the state at high school career days, by club groups, and other professional organizations. For the first time the Arkansas Medical Society had an occupational therapy exhibit at their annual meeting. Therapists filled ten speaking engagements at schools, the Red Cross, the Nurses Association, a meeting of the speech therapists, and the staff of the Child Welfare Department.

The television stations have continued their cooperation in our recruitment program. We were fortunate in having interviews on all three Little Rock stations, a total of eight programs. One station featured occupational therapy is a 15-minute program each day for a week with therapists and demonstrations from five of the treatment fields represented in the state.

Dorothy Lehman was our guest at a dinner meeting in the fall and with the president, Ayleene Feibleman, was interviewed on the radio the next day. She also spoke to students at the Little Rock Central High School and the North Little Rock High School.

In addition to the recruitment activities for the year, monthly meetings were planned in the spring at the different hospitals thus combining field visits and program. The director of the State Crippled Children's Division spoke on their program in the state and two children's hospitals were visited. A local prosthetist explained the making and fitting of prosthetic appliances. At the State Hospital, the director of research outlined their outpatient clinic program and new drugs in relation to the earlier need of occupational therapy.

A picnic was held in May preceded by our annual meeting at which time officers were elected.

OFFICERS

President	Margaret G. King. O.T.R.
Vice-President	Dorothy H. Marsh, O.T.R.
Secretary-Treasurer	Phillip Allexander
Delegate	Virginia R. Stockwell, O.T.R.

FLORIDA

Delegate-Reporter, Lois Anne MacDonald, O.T.R.

The Florida Occupational Therapy Association has a membership which is somewhat scattered geographically; holding its own numerically, losing therapists and gaining new ones in balanced numbers; and, for the greater part, is quite young and inexperienced in affairs of the association. It is the plan of this state association to revise its constitution in such a way as to give newly elected officers a chance to become better acquainted with their duties while the outgoing officers are still conducting the affairs of office. The need for this was felt when, within two years, the preceding president, delegate, and secretary-treasurer were no longer with us and much of the membership had undergone change. The plans for revision or amending are in committee at the present time.

We have been fortunate in having opportunities to meet with allied groups during the past year. In October, we met with the Florida Society for Crippled Children in their annual convention in which Latin-American rehabilitation personnel and the International Society for the Welfare of Cripples participated. Dr. Howard A. Rusk of New York and Dr. Dean Roberts of the National Society for Crippled Children and Adults were featured speakers. Other notable participants were Dr. A. R. Shands, Jr., Dr. Henry H. Kessler, Mr. Kurt Jansson of the United Nations, Dr. Darrel Mase of the University of Florida and representatives from Cuba, Puerto Rico, Guatemala, Mexico, and Haiti.

In January, the Florida Occupational Therapy Association was represented, by its president and secretary, in a three day workshop planning conference at the University of Florida in Gainesville. The conference was sponsored jointly by the Office of Vocational Rehabilitation and the University for the purpose of planning the integration of training of rehabilitation personnel at the University of Florida. This is the first year for the medical school in Gainesville and Florida is most interested in providing a well planned, progressive center for medical and para-medical personnel.

In February, members of the FOTA were invited to attend the annual physical therapy meeting in St. Petersburg at which time the principal speaker, Dr. J. Tarafa, described the facilities and functioning of the Rehabilitation Center in Havana, Cuba.

Recently the association is initiating a much needed periodic newsletter, one of our aims being to strengthen our force and identity as a group.

OFFICERS

President	Christine Haukland, O.T.R.
Vice-President	Miriam Thralls, O.T.R.
Secretary-Treasurer	Florence Walters, O.T.R.
Delegate	Lois Anne MacDonald, O.T.R.
Alternate Delegate	Alpha Lewis, O.T.R.

VIRGINIA

Delegate-Reporter, Margery C. Peple, O.T.R.

The Virginia Occupational Therapy Association was represented at a Virginia advisory legislative committee hearing on the licensing of physical therapists. The physical therapists' request for licensing was supported, while the occupational therapists' desire to be excluded from this legislation was voiced and recognized.

In January of this year, our annual combined PT-OT meeting was held at the Medical College of Virginia on the subject, "Recent Developments in the Field of Arthritis." Dr. Elam Toone was the principal speaker,

followed by short descriptions by therapists of a home-bound program, out-patient clinic, and home-making training.

Another interesting meeting was held at the Veterans Hospital in Richmond. Changes in the treatment of tuberculosis was discussed from the medical aspect by Dr. Wyatt E. Roye, followed by a panel of occupational therapists, doctors, and a counselor.

Our fund-raising campaign this year has been considerably more effective as the result of a new system of using state section chairmen. Two means have been used: the sale of stationery and the sale of insignia seals. The funds raised in this manner are used primarily for scholarship purposes.

Planning for the OVR regional institute on "Pre-vocational Techniques and Media" held in Richmond in June, recalled the esprit de corps developed during the Washington conference planning.

Despite the transfer of 25 per cent of our members to other areas, the active membership has been built back up to forty-one. In addition, there are two honorary members, six fellows, and two associates. About 20 per cent of the members attended the national conference in Minneapolis.

OFFICERS

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Vice-President	Genevieve K. Cummings, O.T.R.
Recording Secretary	Jean Comyns, O.T.R.
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Alternate Delegate	Mary E. Blayney, O.T.R.

THE IMPATIENT PATIENT

An analysis of the reason why patients are impatient today despite the thousands of people employed in health fields, is the subject of a scientific exhibit prepared by the National Foundation for Infantile Paralysis and designed for showing to professional audiences throughout the medical, allied professional, and hospital world.

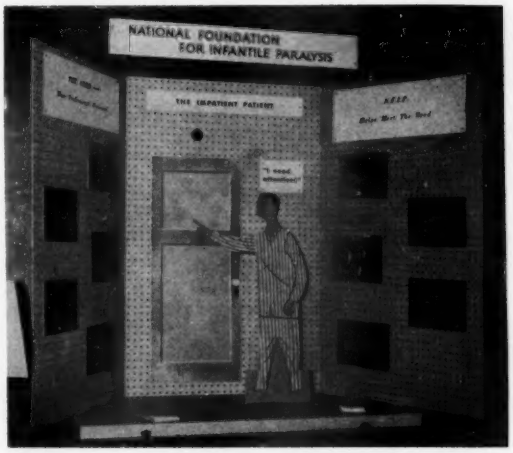
The exhibit highlights an irate, pajama-clad patient standing outside his hospital room, a demanding finger poised in the air, his unanswered signal light flashing behind him, and he is shouting: "I need attention!"

The shortage of professional personnel to meet patient requirements is not a new subject; doctors, hospitals, all the co-professions, and the patients are aware of it. Everybody concerned has been searching for ways to correct it.

The National Foundation's exhibit points up the reason for the dilemma and indirectly suggests that a system of leadership practices and team-work among professional personnel will be necessary to correct the problem which, simply stated, is to meet service requirements and, at the same time, safeguard patients.

"The time is long past," said Dr. Catherine Worthingham, Director of the Division of Professional Education at the National Foundation, "when the professions can insist that patients must be cared for only by qualified personnel. We need to recognize the fact that because of the urgent demand for service many people who are inadequately prepared for such technical work are hired through sheer necessity to give care and treatment to patients. These people, without adequate supervision, are more dangerous to the public than an unlicensed driver on the highway."

To explain the current situation, the exhibit stresses the fact that from 1940 to 1954, six hundred seventy-



NFIP Exhibit

nine hospitals were added to the 6291 hospitals already existing in the United States, and although a few have closed since 1954, the number of patients has continued to climb from 10 million in 1940 to over 20 million in 1954.

"Although early ambulation reduced the average stay of the patients in the hospital from 17 days in 1940 to 7.8 days in 1954," Dr. Worthingham continued, "it merely meant that the beds were filled more quickly with acutely ill patients who required far more service than convalescent patients would demand. The net result has been an increase in need for service and for better trained people to give it."

In presenting this increasing demand, the exhibit compares the increase of doctors to the expansion of hospitals and hospital admissions. Over the 14 year period, the number of doctors per one hundred thousand population increased from 133 to 136. Considering the number of doctors who are removed from general practice because of specialized fields, such as radiology, anesthesiology, pathology, research, education, and administration, and the number who are consulting specialists for specific conditions, the number of doctors to population becomes increasingly small. The frequency of doctor-patient contact is variable and has a tendency to become less and less frequent.

This would not be so serious in itself if the co-professional groups had been able to keep pace with the demands, but they, too, have fallen behind. For example, in 1940, there were 216 professional nurses per 100,000 population. Despite a 37% increase in graduate nurses, this number had only climbed to 244 per 100,000 population by 1954. The ratio of such critical personnel as physical therapists, occupational therapists, and medical social workers to population has increased even more slowly than in nursing.

"Schools designed to prepare the doctor's co-professional workers must concentrate on teaching the subject matter and techniques necessary to *perform*—not teach—the procedures and treatments ordered by the doctor," Dr. Worthingham said. "There is little time available in the basic curriculums to convert the worker to a teacher or even to a supervisor of the laymen hired, of necessity, to assist on the wards and in the clinics throughout the nation."

Dr. Worthingham explained that preparation to teach thus becomes a post-graduate program for professional

workers; a requirement too few graduates of professional schools can afford to undertake even if they are interested in teaching a specialty they originally entered to practice.

"That basic schools do not prepare professional students adequately to meet the ever-changing health demands is neither the fault of the schools nor of the graduates," Dr. Worthingham stated. "It is the inevitable result of the insatiable demand of the American public for health protection and health services. This is forcing a change in the relationships between doctors and the other professional workers in the fields."

Through the information program of the Division of Professional Education, the National Foundation is attempting to draw professional attention to the need to expedite the changes necessary to accomplish the teamwork involved in safe patient care. Soon to be released is a twenty-minute film strip designed to carry this message.

"Nineteen years of struggle to obtain adequate, safe care for polio patients throughout the nation has forced us to study these personnel problems," Dr. Worthingham said. "Nearly twenty-five million dollars has been authorized as a result to aid professional education from 1938 through 1956."

Money expended for aid to professional education has been for grants to professional schools and associations; for fellowships to prepare research scientists, clinicians, and teachers; for scholarships to prepare physical therapists and medical social workers (considered critical by the National Foundation because of their importance to patients suffering with diseases such as poliomyelitis) and to produce teaching films, literature, and exhibits designed to give up-to-date information to professional people thereby improving patient care.

That the IMPATIENT PATIENT exhibit points up the need to study these problems is reflected in the soliloquy of a young nurse who viewed it at a recent showing in Boston.

"Poor fellow," she observed, looking at the scowling patient. "I know just how he feels. He's lucky if he can even get a glass of fresh water."

Community Share . . .

(*Continued from page* 155)

choice is not made by the patient. This applies even though a battery of tests shows capability in specific fields. For example, a man with a flair for mathematics might very easily become a good bookkeeper or accountant, but if he hates books and ledgers it is stupid to try to fit him into this kind of work. Let the patient plan along with the staff. Perhaps his ideas will sound fantastic to the staff, but it is safer to let him try them out. If a former farmer decides he would like to do commercial embroidering in spite of severe involvement of all extremities, let him try it out. Motivation can be a wonderful supplement to weak muscles.

Undoubtedly, for both the long and short term patient, for the moderately or severely involved, it will be wise to refer the patient to the vocational rehabilitation agency. A variety of services are available through this source including counseling, testing, training, education and business equipment. This agency works closely with the state employment service and thus has access to information about job openings. Eligibility for services from vocational rehabilitation depends upon financial need only as this relates to ability to pay for medical treatment, books, and other educational supplies. Potentiality for partial or total employment, and age are the chief determinants and many of the services are available without consideration of financial need. These services are generally available in all states and territories to any potential wage-earner sixteen years of age or over.

In order to facilitate the vocational program the staff at the treatment center should: (1) be sure the patient is interested in attaining a vocational goal; (2) be relatively convinced that the patient has realistically accepted his disability; (3) make certain that the patient and staff have some suggestions or ideas to offer vocationwise; and (4) share with the vocational counselor all pertinent information about the patient. The chances are that the staff knows the patient better as a person than the vocational counselor will have the opportunity to know him. Do not expect him to be a miracle worker. However, if members of the hospital team share their observations and knowledge with him he can be an invaluable member of the team in total rehabilitation.

Include the community and its various resources as part of the team as soon as possible. While the patient is in the hospital the need for continuing care and for services becomes apparent. Let the medical social worker, if there is one, and the community work on plans while there is still time to prepare.

The August issue of the American Journal of Occupational Therapy will be a double issue. Part II will carry abstracts of last year's conference speeches.

Part I will carry this year's conference program which will be a completely new type of meeting. The committees in charge of the conference have been working all year to organize a workshop combining the institute and the conference. This is a revolutionary undertaking and promises to be exciting, stimulating and constructive. It will be a meeting you can't afford to miss. So plan now to attend the conference, October 21-25 in Cleveland, Ohio, at the Hotel Carter.

Reviews

DISEASES OF THE HEART, Second Edition. Charles K. Friedberg, M.D. Philadelphia: W. B. Saunders Company, 1956, 1161 pp., $18.

This text is written primarily for the physician specializing in the field of internal medicine and presents a lengthy and technical discussion of the field of cardiology. The book is organized into seven major units: graphic methods of cardiac examination, circulatory failure, diseases of the coronary arteries and coronary heart disease, cardiac arrhythmia, structural abnormalities of the heart, etiologic forms of heart disease, and special problems in heart disease.

While the vast majority of material presented is much more technical than needed by the occupational therapist, there is detailed discussion of the treatment and general management for each diagnosis. This reviewer feels this would be of interest to any therapist working with patients having cardiovascular disease.

—Elizabeth Collins, O.T.R.

GUIDE TO MEDICAL WRITING. Henry A. Davidson, M.D. New York: The Ronald Press Company, 1957, 338 pp., $5.00.

This book is a well written guide on medical writing and the prospective author will find helpful advice on the many problems that are encountered in preparing any written material. Therefore this book is recommended for students as well as graduate occupational therapists.

The author, editor of the *Journal of the Medical Society of New Jersey*, leaves nothing in doubt but clearly and specifically presents guides for effective writing in a style that makes the book enjoyable reading.

PHYSICAL MEASURES IN THE TREATMENT OF POLIOMYELITIS. R. J. S. Reynolds. New York: The Macmillan Company, 1956, $2.50.

Written by a British physical therapist, this rather practical description of physical measures in the treatment of polio refers heavily to the various techniques used in different centers of the United States. The only original comments are the few conclusions drawn from the author's experience. The treatment techniques which he describes become an interesting combination of Kenny, Bennett, Kabot, and Daniels, et al.

Noteworthy conclusions from experience in Queen Mary's Hospital:

(1) On OT in early convalescent stage: "May be contraindicated because the patient may, in an effort to obtain a movement, use substitute or inco-ordinate muscles."

(2) On fatigue: ". . . active exercises in the early stages, pushed too far and too fast do result in loss of muscle power."

(3) On slings: "Slings, pulleys and the buoyancy of pool therapy should not be used in the early convalescent stage because it is difficult to fix remaining body units for precise re-education."

(4) On arm and hand appliances: "Patients can often acquire more independent function of hands and arms by trick motions . . . if unencumbered by appliances."

—Eleanor Hillger, O.T.R.

THE SENTENCE COMPLETION METHOD. Amanda R. Rohde. California: The Ronald Press Company, New York, 1957, 301 pp., $7.50.

The Rohde Sentence Completion form consists of 65 items. The study was aimed at obtaining information pertaining to personality patterns of diverse dynamic behavior. The subjects tested consisted of groups of psychoneurotic and psychotic patients, adolescents and adults. Three of the psychoneurotic groups were under treatment for dysphemia. The data was gathered from studies made of patients in the National Hospital for Speech Disorders, New York City, at the Mental Hygiene Clinic of the New York Regional Office of the Veterans Administration, at the Northport Veterans Administration Hospital, Long Island, and at Brentwood Veterans Administration Hospital, Los Angeles, Calif.

The value of the sentence completion method is described in various ways throughout the book. There are elaborate interpretations and evaluations of several cases. Commenting on the employment of this method as a projective technique, the author says, "Whether the concept of projection is applicable to the sentence completion method appears to depend on the preferred interpretation of projection. Projection appeared most frequently in the protocols of paranoid patients, while rationalization was the most often employed by dysphemia patients. Negativism was the most common characteristic of catatonic subjects. Thus it does not appear to be especially important whether or not the sentence completion method is classified as a projective technique. What is worthy of consideration is that it yields productions which may be indicative of significant variables and organizations of personality."

A Personality Rating Questionnaire and Scoring Form are included in the appendixes.

—Bertha J. Piper, O.T.R.

AN ANTI-SCISSORING DEVICE FOR PATIENTS WITH CEREBRAL PALSY. Samuel B. Thompson, M.D. *The Journal of Bone and Joint Surgery*, 39-A:1 (January) 1957.

Mr. R. T. Hickerson, a bracemaker of Little Rock, Arkansas, was asked by a group of doctors to design a supplement to the lightweight leg braces used by spastic cerebral palsy patients which would control various forms of scissoring occurring in the gait of athetoids and dyskinetic patients.

Hr. Hickerson's device has been used in the Arkansas cerebral palsy program for five years. It has proved effective in controlling the disturbances of gait produced by excessive adduction, abduction, internal and external rotation at the hip joint. Pictures and explanations of the device are shown.

—Elizabeth J. Wood, 1st Lt., AMSC (OT)

THERAPEUTIC EXERCISES IN MANAGEMENT OF PARALYSIS AGITANS. Donald J. Erickson, M.D., Edward C. Clark, M.D., Donald Mulder, M.D., Collin MacCarty, M.D., and Betty Clements, M.D. *The Journal of the American Medical Association*, 162:11 (November 10) 1956.

For paralysis agitans, a progressive symptom complex known also as Parkinson's disease, there is reportedly no curative treatment. This fact however should not obscure the importance of palliative measures such as medical and surgical therapy, and particularly the use of continued therapeutic exercise to aid in the prevention of further progression of the disorder.

Typical of this disability are involuntary tremor with

lessened muscle power, limited range and speed of motion, increased rigidity of muscles of the extremities and neck, stooped posture, and peculiar gait, all of which contribute to a state of mental depression, physical dependency and withdrawal from social contacts and activity. The prevention of this trend, it is felt, is largely dependent on the patient's motivation to be active. Specific therapeutic exercises, professionally prescribed, can do much to alleviate contractures, obtain and maintain normal range of motion of the extremities, increase speed of motion, regain muscle strength, and correct posture and gait. In addition to physical therapy, exercises for finger movement and coordination can be supplemented by occupational therapy craft activities and review of daily living activities.

It is emphasized that the patient must be encouraged to continue to lead an active life to avoid the deleterious effects of inactivity. For such a patient, resignation is the fatal step.

—D. R. Street, 1st Lt., AMSC.

REHABILITATION OF THE PARAPLEGIC PATIENT. Donald A. Covalt, M.D. *The Journal of the American Medical Association*, 162:13 (November 24) 1956.

In order for rehabilitation of the paraplegic patient to be as complete as possible, the neurosurgeon, urologist, orthopedic surgeon and physiatrist must operate as a closely knit team. This article presents measures of active rehabilitation to be taken from the patient's admission to the hospital until discharge.

Exercises for joints and muscles of lower and upper extremities are discussed from Stryker frame, to bed, to wheelchair, to crutches. Activities presented are all geared to the adjustment of the paraplegic patient to ambulation and to daily living. Following physical restorative measures, vocational exploration is advised. By working constantly toward self-sufficiency on a physical, emotional, and vocational level, through an active rehabilitation program, later complications of adjustment to living may be circumvented or at least minimized for the paraplegic patient.

—D. R. Street, 1st Lt., AMSC.

ASPECTS OF REHABILITATION OF THE AGED. Murray B. Ferderber, M.D. *The Journal of the American Medical Association*, 162:11 (November 10) 1956.

Surveys in more than 200 institutions for the aged and the chronically ill, over a ten year period, reveal significant possibilities for improvement of health and morale in this group. The author presents this report as consultant for the Allegheny County Institution District.

With rapid advances in medical science comes the realization that age is not in itself an automatic deterrent to physical restoration. The medical profession and the team concept is said to be gaining increased momentum in the field of geriatrics as "investigation is followed by activation" in the rehabilitation of the aging.

Through the efforts of the general practitioner and visiting public health nurse, acting as liaison between hospital and home, many aging persons can be cared for most adequately on a home care program. The patient must be helped to help himself, to maintain himself in familiar surroundings. If it becomes necessary to resort to institutional care, a new type of approach to problems of the aged is envisaged, with an active graded treatment program for these frequently "displaced patients," with a view to restoring them to home and community. Obstacles to this transition are enumerated.

The burden of the task of rehabilitation is placed upon those in physical medicine, the physiatrist being the one designated to bring into conjunctive action the skills of his colleagues in all other specialties, along with the necessary ancillary services of social workers, therapists, recreation workers, aides, and nurses. It is time, states the author, that the challenge of the restoration of the aged and chronically ill be met in medical, economic and social spheres.

—D. R. Street, 1st Lt., AMSC.

CEREBRAL PALSY: METHODS OF TREATING THE NEUROMUSCULAR DISABILITIES. George G. Deaver, M.D. *Archives of Physical Medicine and Rehabilitation*, 37:6 (June) 1956.

The introduction to this article deals briefly with various methods of neuromuscular training in the cerebral palsied patient; namely, those of Phelps, Fay, Kabat, Pohl, Swartz and the Bobaths.

The author feels that, although all these methods have a similar objective in the treatment—neuromuscular training—to enable the individual to perform activities of daily living, none of these treatments will attain the objective as effectively without the use of braces. The purpose of the braces or the prosthetic appliances is to restrict all but two movements of an extremity and utilize these movements to perform a functional activity. Once the patient has learned to control two movements, he utilizes them and two more movements are released by either removing the restricting appliance or by unlocking a part of the appliance. The author briefly describes how this method can be applied to both upper and lower extremity function.

Proper and systematic training in bed and wheel chair activities is another important phase of the rehabilitation program. Not only does this phase increase the individuals' independence in activities of daily living, but also helps to increase strength and coordination.

At the present time we have no way to prognosticate what a child might gain from a rehabilitation program. There are many factors in addition to the physical factors which must be considered, such as motivation of the child, attitude and cooperation of the parents, adequate treatment, etc. Intelligence might be a factor to be considered, but is certainly not a determining factor.

—Elizabeth M. Nachod, Captain, AMSC (OT)

VOCATIONAL GUIDANCE AND REHABILITATION. Ernest Fleischer, Associate Editor. *Cerebral Palsy Review*, Special Issue: 17, 5 (Sept.-Oct.) 1956.

In the past, emphasis in cerebral palsy has centered on meeting the need for trained workers in areas relating to medical aspects and upon the child as a whole. Problems facing adults, primarily vocational and social in nature, have been relatively neglected. The Universities of Georgia, Kentucky and Temple have, each summer since 1953, conducted workshops for agency and school personnel in problems of guidance of the adolescent with cerebral palsy. The purpose was to prepare people to learn to understand the vocational problems and special needs of adolescents with cerebral palsy so they may continue their own education and the education of others. With the exception of one article this issue is comprised of papers constituting reports of project committees presented at these summer university workshops.

This issue points up the need and value of vocational guidance. Training in cerebral palsy is incomplete un-

less it includes the guidance by which these individuals can make sound occupational choices. Success in employment hinges upon this guidance. The trained unemployed individual is a non-contributing member of society and hence a maladjusted individual. This condition is not infrequent for the cerebral palsied and tends to void the contributions received from the medical, educational, therapeutic and psychological services.

Although the trained counselor will not find "miracle" techniques or new tools, this issue should enlighten him to his important contribution in cerebral palsy. The issue should benefit all workers in cerebral palsy. Its real value is in placing proper perspective to an often overlooked area, vocational guidance.

—Lester M. Brower, M.A., O.T.R.

FUNCTIONAL BRACING OF THE ARM, PART II. Edwin R. Schottstaedt, M.D., and George B. Robinson. *The Journal of Bone and Joint Surgery*, 38-A:4 (July) 1956.

The upper extremity braces described and pictured in this article are examples of bracing techniques discussed in Part I of the article in the June issue of *Journal of Bone and Joint Surgery*. They fall into three categories: (1) Braces used to provide a satisfactory assisting arm; (2) Braces designed for the patient with severe upper extremity weakness and paralysis with the objective of aiding him in self care and light arm activities; (3) A combination of both types based upon individual needs.

There are ten cases presented with detailed functional analysis, prescription and pictures for each one. The more or less elaborate harnessing and control systems are carefully described and clearly pictured. Specific muscle ratings are given in terms of: trace, poor, fair, good and normal.

—Elizabeth J. Wood, 1st Lt., AMSC (OT)

TRAINING PROGRAM FOR REHABILITATION CENTER ADMINISTRATORS, Willis C. Gorthy, *Archives of Physical Medicine and Rehabilitation*, Vol. 37, No. 7, July, 1956.

Many rehabilitation facilities in existence today are small enterprises concentrating their effort on a particular phase of rehabilitation. This is due in part to interest shown by dedicated individuals desiring to support the specialized professional interests of the founder. The singleness of purpose and the small number of patients facilitates individualized treatment by the person in charge.

The current trend in rehabilitation is toward more comprehensive centers. Federal legislation in the form of P.L. 565 (the amendments to the Vocational Rehabilitation Act) and P.L. 482 (Hill-Burton Act) has been most encouraging toward the establishment of such centers. With greater emphasis being placed on handling larger numbers of patients, variety of services offered and the development of better community relationships, the administration and management of the comprehensive center becomes a full time job. The successful operation of the center will depend on the skillful management at the higher levels of the organization.

In 1953 the conference of Rehabilitation Centers, recognizing the need for trained administrators, organized a committee to draw up recommendations for a training course. The Federal Government was quick to give financial aid to the proposal, under the provisions of P.L. 565. The first course was conducted at the Institute for the Crippled and Disabled and was seven months in duration. Trainees were selected with the following qualifications: at least three years experience in one of the professional fields of rehabilitation or in administration, minimum age of thirty years and with personality attributes such as resourcefulness, personal stability, feeling for leadership and tact. The group selected was composed of five men and five women representing such professional fields as speech therapy, public health nursing, occupational therapy, physical therapy, education and business management.

Since none of the trainees had experience in a comprehensive rehabilitation center, an orientation in the fundamentals of rehabilitation was given in addition to administrative techniques, management concepts and fundamentals of community planning. Classroom instruction was combined with three 7-week periods of on-the-job training at selected rehabilitation centers to provide the trainee with a variety of experiences in small as well as large centers.

At the close of the training period the attitude of the trainees had changed from one of regarding management as a simple subject, with every person possessing the needed in-born skills, to a realization of the complexity of successful management and operation of a large center.

—Anna M. Doudlah, Lt., AMSC (OT)

EXPANDING HORIZONS IN CEREBRAL PALSY. Meyer A. Perlstein, M.D. *American Journal of Physical Medicine*, 35:3 (June) 1956.

Dr. Perlstein brings to the attention of the readers the focus of attention to cerebral palsy in the last ten or twelve years. Also the many new services available and the effective screening and treatment methods. He emphasizes the existing realistic outlook.

The article covers the following in relation to cerebral palsy: (1) medical aspects, (2) treatment, (3) social and economic aspects, and (4) research.

Dr. Perlstein has clearly and realistically presented the four aspects. He closes the article with "Observations and Reflections of the Cerebral Palsy Problem in Europe," providing a broad view of the problem, as he sees it, in the world today.

—Florence M. Stattel, O.T.R.

TONIC NECK REFLEXES IN EXERCISE OF STRESS IN MAN. F. A. Hellebrandt, M.D., Sara Jane Houtz, M.S., Miriam J. Partridge and C. Etta Walters, Ph.D. *American Journal of Physical Medicine*, 35:3 (June) 1956.

The authors discuss the early work of Magnus and de Kleign and subsequent work in relation to the tonic neck reflex. The purpose of the study is (1) "to observe in greater detail the configuration of the postural patterns evoked by stressful purposive movements," and (2) "to inquire more directly into their biological significance with a view to assessing their utility in the neuromuscular training of the disabled."

This study is presented in a scholarly manner with detailed diagrams and electromyogram graphs. The study concludes, "the reflexes arising in the limbs themselves during heavy resistance exercise in man, regulate the posture of the head, and this in turn expedites performance." The study indicates the value of the tonic reflex training techniques in the treatment of the disabled.

—Florence M. Stattel, O.T.R.

Georgia Warm Springs Foundation

GRADUATE COURSE

Physical Therapy and Occupational Therapy

In the Care of *Neuro-Muscular Disease*

This course is open to graduates of approved schools of physical and occupational therapy. Such graduates must be members of the American Physical Therapy Association and/or American Registry of Physical Therapists, or American Occupational Therapy Association.

Entrance dates: First Monday in January, April and October.

Course I—Emphasis on care of convalescent neuromuscular disease with intensive training in functional anatomy, muscle testing, muscle reeducation and use of supportive and assistive apparatus. This course is complete in itself.

Course II—Three months duration with course I prerequisite. Emphasis on care of severe chronic physical handicaps with intensive training in resumption of functional activity and use of adaptive apparatus.

In-Service Training Program—Fifteen months duration at salary of $225 per month plus full maintenance, increasing to $250 per month at the completion of nine months. This program includes training in course I and II.

Tuition: None. Maintenance is $100 per month. For scholarship to cover transportation and maintenance for course I and II, contact National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York 5, New York. (Scholarships require two years of experience.)

For further information contact:

ROBERT L. BENNETT, M.D.
Medical Director

Georgia Warm Springs Foundation
WARM SPRINGS, GEORGIA

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POSITIONS WANTED

Miss Muriel K. Hopkins, O.T.R., 161 W. 12th St., Holland, Mich., 2 years experience, interested psychiatric or physical disabilities and rehabilitation; handicapped and work from wheelchair (experience while in wheelchair); affiliations not included.

POSITIONS AVAILABLE

Western Psychiatric Institute and Clinic (University of Pittsburgh) now has interesting position open for a staff occupational therapist. Address all inquiries to Miss Dorothy J. Wirt, Director of Occupational Therapy, 3811 O'Hara Street, Pittsburgh 13, Pennsylvania.

Positions open for staff therapists in progressive well-equipped OT department of largest private mental hospital (750 beds) in USA. Well-rounded program includes both workshop and ward classes. Paid annual vacation and sick leave; laundry and maintenance provided. Pleasant working conditions, beautiful surroundings. Write to Dr. J. Butler Tompkins, Superintendent, Brattleboro Retreat, Brattleboro, Vermont.

Occupational therapists—salary $3456. Vacation and sick leave, retirement plan, and single room at nominal cost. Located in historic Williamsburg. Apply Personnel Office, Eastern State Hospital, Williamsburg, Virginia.

Occupational therapist wanted to direct well organized program in a liberal, progressive state hospital located just 12 miles from downtown Louisville. Salary open. Annual increments, paid vacations and sick leave, and retirement plan. Active teaching program. Write to Mrs. Janice Magruder, OTR, Central State Hospital, Lakeland, Kentucky.

Progressive department of physical medicine in a teaching and research hospital offers position for registered therapist with experience in physical disabilities. Program includes treatment of multiple disabilities, including upper extremity amputees, and work on polio respirator center. Emphasis on team approach; opportunities for research; student affiliation center; generous personnel benefits. Salary open. Write: Occupational Therapy, Department of Physical Medicine and Rehabilitation, University Hospital, University of Michigan, Ann Arbor, Michigan.

Occupational therapists—junior and senior grade. Salary range: $335.00 to $485.00 per month minus $25.00 for full maintenance. Salary dependent upon experience and training. Duties: occupational therapist in state mental hospital with a reorganized, expanding program. Sectional supervision of OT units in admission service, intensive treatment service, and tuberculosis service. Senior therapists may supervise junior therapists, student nurses, and OT aides. Write Superintendent, Logansport State Hospital, Logansport, Ind.

Good opening for an occupational therapist who is able to carry general administrative responsibilities including supervision of new intensive treatment units. Dynamic rehabilitation program requires candidate with good potential for teaching and supervising other occupational therapists, students and affiliates. Available to graduates of approved schools with two years experience. Salary range $4020-$5460. Starting rate based on qualifications. Apply to William F. Green, M.D., Fairfield State Hospital, Newtown, Connecticut.

Registered occupational therapist for 250 bed convalescent hospital. Experienced in treatment of physical disabilities. U. S. citizen, under age 50. Salary range $415-519 plus vacation and holidays. Write to Medical Director and Superintendent, Tulare-Kings Counties Hospital, Springville, Calif.

Immediate opening for director of occupational therapy department. Salary open. Pleasant surroundings and working conditions. OT dept. now operating in the New Norfolk State Hospital Administration Building, with spacious quarters, new and modern equipment. Contact Dr. C. G. Ingham, Supt., Norfolk State Hospital, Norfolk, Nebraska.

Occupational therapist wanted for private office practice of physical medicine and rehabilitation. Prescribed treatments will be comprehensive for all types of occupational therapy, exclusive of diversional. All types of disabilities. Adults predominate. Salary open. Apply to Nila K. Covalt, M.D., Box 1494, Winter Park, Fla.

Registered occupational therapists for staff positions—cerebral palsy department. Salary $4,220-$4,790—13 working day vacation to start—retirement—hospitalization—sick benefits. Write Lavinia M. Davidson, Director, Cerebral Palsy Department, New York State Rehabilitation Hospital, West Haverstraw, N. Y.

Director of department of occupational therapy in rehabilitation hospital for children and adults. Present capacity is 70 beds and hospital is now in initial stages of planning expansion of in-patient and out-patient facilities. Would prefer therapist who has been associated with the type of program conducted by Liberty Mutual or a university affiliated rehabilitation center. Personnel policies include 40 hour week, three weeks vacation, seven paid holidays, accumulative sick leave benefits, non-contributory retirement plan and social security coverage. Salary commensurate with therapist's experience and training. Apply Administrator, Eastern N.Y. Orthopaedic Hospital-School, Inc., 124 Rosa Road, Schenectady, N.Y.

Immediate opening for two staff therapists in a private psychiatric hospital. Experience not required. Pleasant surroundings and working conditions. Benefits include paid vacation, sick and holiday time. The hospital has a pension plan and social security. Write to Miss Anna F. Moore, O.T.R., Director of Occupational Therapy, Friends Hospital, Phila. 24, Pa.

Supervising occupational therapist to develop chronic care and pre-vocational programs. Out patient center serving Westchester County. Salary $4600-$5880. Contact Eugene Moskowitz, M.D., Mobility, 427 Main Street, New Rochelle, New York.

Qualified occupational therapists—2—with experience, to work as members of medical team in 900 bed teaching hospital affiliated with Western Reserve University. Supervisory openings in tuberculosis section and in physical disabilities section, including the poliomyelitis respirator center. Five-day week; paid vacation and sick leave; meals, room, and laundry available at minimal cost. Salary dependent upon applicant's qualifications. Pension plan. Apply: Nadene Coyne, M.D., Director, Department Physical Medicine and Rehabilitation, Cleveland City Hospital, 3395 Scranton Road, Cleveland 9, Ohio.

Occupational therapists, registered; staff level; interested in working with amputees, polios, paraplegics, cerebral palsy and related diagnoses. Present plant includes 70 bed rehabilitation hospital and a cerebral palsy outpatient school and therapy unit with a capacity of 35 children. Plans are being formulated for the expansion of these facilities to meet the growing demand of the community. Personnel policies include accumulative sick leave benefits; non-contributory retirement plan and social security; 40 hour week; three weeks vacation, seven paid holidays; salary commensurate with experience and training. Apply Administrator, Eastern N.Y. Orthopaedic Hospital-School, Inc., 124 Rosa Road, Schenectady, N.Y.

Wanted immediately—Two registered therapists for positions of director and assistant director, OT department 100-bed accredited, private psychiatric hospital. Excellent working conditions offering wide range of experience. Team approach. Contact Elizabeth Windsor, OTR, North Shore Hospital, (formerly North Shore Health Resort) 225 Sheridan Road, Winnetka, Illinois.

Wanted: Staff position for registered occupational therapist in a pediatric hospital, July 1, 1957. Salary commensurate with experience and qualifications. Liberal personnel policies. Apply, Director of Nursing, The Children's Memorial Hospital, 707 W. Fullerton Ave., Chicago 14, Ill.

Staff position open for registered occupational therapist. Salary open. Pleasant surroundings and working conditions. Contact Dr. C. G. Ingham, Superintendent, Norfolk State Hospital, Norfolk, Nebr.

Metropolitan area of Texas: Immediate opening for occupational therapist experienced in rehabilitation or treatment of adult physical disabilities to work with another therapist in an expanding rehabilitation program. New, air-conditioned building—excellent equipment. Salary open. Apply to Robert F. Scott, Director, 4700 S. Riverside Dr., Ft. Worth, Texas.

Occupational therapist for well-equipped outpatient center established 1950, offering nursery school, speech, occupational and physical therapy to cerebral palsied children. Beginning salary $3800, more if experienced. Regular increments. Five day week, four week summer vacation, nine day Christmas holiday, sick leave, and social security. Write Miss Virginia Pettit, Director, United Cerebral Palsy of Cincinnati, Inc., 3601 Victory Parkway, Cincinnati 29, Ohio.

Experienced occupational therapist wanted to take charge of department in established community center offering rehabilitation services with expanding program. Address Half Way House, 12 East Boulder Street, Colorado Springs, Colorado.

The department of physical medicine and rehabilitation at Philadelphia General Hospital has announced vacancies for qualified occupational therapists to work in one of the largest, most modern departments in the nation. Completion of an approved course of training leading to a degree or certificate is required—start at $4017 per year plus excellent fringe benefits and promotional opportunities. Submit resume to Personnel Department, Room 975C City Hall, Philadelphia 7, Pennsylvania.

In need of qualified occupational therapist in full-staffed out-patient cerebral palsy center. 37½ hour work week, with two week vacations twice a year. Salary open with yearly increments. Apply to Paula Egel, Director, 441 South 19th Street, Baton Rouge, Louisiana.

OTR's needed. The New York State Department of Mental Hygiene has a dynamic and expanding occupational therapy program which offers opportunities for initiative in active treatment services, participation in research, and experience in student supervision. Tuition available for advanced courses. Good promotional prospects. Beginning salary $4220. Write Virginia Scullin, O.T.R., Director of Occupational Therapy, 217 Lark Street, Albany, New York.

Full-time OT experienced in psychiatry for 54-bed sanitarium for young women with moderate mental problems in metropolitan Los Angeles. Opportunity to work intimately with dynamically oriented psychiatric staff and outstanding volunteers. Salary to $400 for well-qualified person. Please send full data on education, experience and background. Resthaven, 765 College, Los Angeles 12.

Occupational therapists (staff) interested in working in New York State contact Mr. Jay Schleichkorn, Director of Clinical Services, United Cerebral Palsy Associations of New York State, 1475 Broadway, N.Y.C. 36.

OTR to assume staff and eventually chief position at cerebral palsy out-patient center. Expansion program completed by fall of '57. Case load soon to include all pediatric disabilities. Starting salary around $4,000 depending on experience. Liberal holidays, paid vacations, sick leave, 5 day week, 8:30 to 4:30. For further information contact Vincent J. Privitera, Director, Cerebral Palsy Treatment Center, 808 Crockett, Amarillo, Texas.

Registered occupational therapist for 2,000 bed psychiatric hospital, 12 miles out of Boston. Salary range $3,328-$4,264. For further information contact: Miss Helen Storr, OTR, Head Occupational Therapist, Metropolitan State Hospital, Waltham 54, Mass.

Registered occupational therapist. Immediate opening for person qualified to supervise small staff of therapists in home-bound program. Varied case load with emphasis on activities of daily living. Salary range $5016-$5232, 40 hr., 5 day week, 22 working days vacation, sick leave, retirement plan. Interesting and challenging work in a large city. Write Miss Marion E. Shand, Director, Visiting Nurse Society, 1340 Lombard Street, Philadelphia 47, Pa.

Wanted: qualified occupational therapist, male or female, for rehabilitation center which provides full rehabilitation services for in-patients and out-patients. Desirable working conditions and salary. Employment date: July 31, 1957. Refer inquiries to: Administrator, Rehabilitation Center, Inc., 340 East Madison Street, Louisville 2, Kentucky.

Training and research opportunities for registered occupational therapists at Eastern Pennsylvania Psychiatric Institute. 250 bed adult unit, and 50 bed children's unit. Newly completed modern psychiatric institute providing opportunities for training students and research. Departmental coordination enriches treatment and resources available. One position available in the children's unit and one position available in the adult unit at the present time. Write to: Barbara Schuerch, Director Occupational Therapy, Eastern Psychiatric Institute, Henry Ave. and Abbottsford Road, Philadelphia 29, Pa.

Registered therapist with administrative experience to fill position in state mental hospital as chief of department. Located in university town. Salary $4800 to $5400. Write Personnel Officer, Box 151, Norman, Oklahoma.

Registered OT for new TB sanitarium in Illinois. Civil service, retirement, holidays, 40-hr. week, good salary. Apply Superintendent, Chicago State TB Sanitarium, 1919 W. Taylor, Chicago 12.

Combination student-instructor position for therapist who is equipped to teach skills to occupational therapy students and wants to work for a master's degree. Salary for two and one-half days per week of instruction during the academic year (September 16-May 31) plus tuition exemption for twelve points of graduate work. Information: Miss Marie Louise Franciscus, Columbia University, 630 West 168th Street, New York 32, New York.

Wanted—OTR's for director and staff therapists in training center for mentally retarded children and adults. Starting salary is $4472 and $3900 respectively. Vacations, holidays, sick leave, state pension plan, insurance. Apply—Superintendent, Pownal State School, Pownal, Maine.

Registered occupational therapists for 300 bed private neuropsychiatric hospital, 25 miles from New York City. Clinical training program; group insurance, retirement and other personnel benefits. Salary commensurate with experience. Maintenance optional. Write Mrs. E. S. Owen, O.T.R., The New York Hospital, Westchester Division, 121 Westchester Avenue, White Plains, New York.

At present we have an opening for an occupational therapist with one or more years of experience to organize the occupational therapy section of the new rehabilitation center in Oshkosh, Wisconsin. The rehabilitation center is located in a new wing which was just added to Mercy Hospital, a 260-bed general hospital. Liberal personnel policies; generous salary based on experience and qualifications. For further information please write to: Sister Superior, Mercy Hospital, Oshkosh, Wis.

OTR needed to work with physically handicapped and emotionally disturbed patients at institution for mentally retarded and epileptic. New OT building being constructed; full equipment and supplies; OT program medically oriented. University of Florida close by, offering social, cultural and educational advantages. Write to: Mr. R. C. Philips, Superintendent, Florida Farm Colony, Gainesville, Florida.

Position open for a registered occupational therapist in a 1600 bed, progressive mental hospital. Salary range is $4020 to $5820. Good living quarters available for single applicants at reasonable rates. Located on the Ohio River between Louisville, Kentucky, and Cincinnati, Ohio. Recent graduates accepted. Contact Hazel C. Tendo, O.T.R., Madison State Hospital, Madison, Indiana.

Wanted: occupational therapist registered with experience as assistant director in a research minded TB, GM & S and cardiac hospital with good team approach and clinical training center. Mrs. G. Boeck, Personnel Director, City of Hope Medical Center, Duarte, California.

Excellent opportunity. Rapidly growing rehabilitation center needs another O.T.R. Beginning salary $3800, 5 day-37½ hour week. Paid annual vacation, paid sick leave, social security, Blue Cross and Shield. New, well equipped building and department. Only pleasant, cooperative and dependable need apply. Write or call Roy E. Patton, Executive Director, Crossroads Rehabilitation Center, 3242 Sutherland Avenue, Walnut 6-2482. Indianapolis, Indiana.

Challenging position for O.T.R. at Illinois State Training School for Girls. Emotionally disturbed adolescents. Salary open. 11 paid holidays. Retirement plan. Blue Cross hospitalization available. Apply: Ruth Krumm, Ass't. Superintendent, Box 111, Geneva, Ill.

Immediate opening for part-time OT to organize and execute program—N.P. unit of municipal hospital under supervision of Rehabilitation Center. In addition, may administer program at adjoining state alcoholism clinic thus creating full-time employment, if desired. Also, full-time staff therapist position available January, 1958, at Hartford Rehabilitation Center, 2 Holcomb Street, Hartford, Connecticut.

Occupational therapist in Hartford out-patient clinic and hospital under state commission on alcoholism. Starting salary: $3,660. Three weeks vacation, liberal holidays and sick leave. Apply to State Personnel Director, State Office Building, Hartford, Connecticut.

Occupational therapist for children's orthopedic hospital and rehabilitation center located 32 miles from New York City, in Valhalla, N.Y. Salary open. Contact Jacob Reingold, Executive Director, Blytheville, Valhalla, N.Y., Tel.—LYric 2-7555.

Staff OT wanted immediately for work in expanding rehab. center. Services include P.V. unit, sheltered workshop, braceshop, job placement. Starting salary $4200, 20 days vacation, 12 days sick leave. Student training center for University of Pittsburgh. Write Mrs. Mona Durgin, O.T.R., Harmarville Rehabilitation Center, Pittsburgh 38, Pa.

Immediate opening for staff occupational therapist in expanding general rehabilitation center. Starting salary $3600 with quarterly increments to $4200. Then on merit. 1¼ days monthly sick leave accumulative to 90 days, hospitalizational insurance, 2 weeks paid vacation. Write Medical Director, Magnetic Springs Foundation, Magnetic Springs, Ohio.

Schools Offering Courses in Occupational Therapy

Boston School of Occupational Therapy, Affiliated with Tufts University, 7 Harcourt St., Boston, Mass. *Mrs. John A. Greene, President.*

Buffalo, University of, School of Medicine, 2183 Main St., Buffalo 14, N. Y. *Asst. Prof. Nancie B. Greenman, O.T.R., Director of Program in O.T.*

Colorado State University, Fort Collins, Col. *Asst. Prof. Marjorie Ball, O.T.R., Director of O.T.*

Columbia University, College of Physicians and Surgeons, 630 W. 168th St., New York 32, N. Y. *Ass't. Prof. Marie Louise Franciscus, O.T.R., Director of Training for Occupational Therapy.*

Eastern Michigan College, Ypsilanti, Michigan, *Assoc. Prof. Frances Herrick, O.T.R., Director of O.T.*

Illinois, University of, College of Medicine, 1853 West Polk St., Chicago 12, Ill. *Assoc. Prof. Beatrice D. Wade, O.T.R., Director of O.T.*

Iowa State, University of, College of Liberal Arts and College of Medicine, Iowa City, Iowa. *Ass't. Prof. Elizabeth Collins, O.T.R., O.T. Supervisor.*

Kalamazoo School of Occupational Therapy, Western Michigan University, Kalamazoo 45, Michigan. *Assoc. Prof. Marion Spear, O.T.R., Director of O.T.*

Kansas, University of, School of Occupational Therapy, Lawrence, Kansas. *Assoc. Prof. Frieda Congello, O.T.R., Director of O.T.*

Mills College, Oakland 13, Calif. *Miss Elizabeth Fuchs, O.T.R., Director of O.T.*

Milwaukee-Downer College, 2512 E. Hartford Ave., Milwaukee 11, Wis. *Prof. Henrietta McNary, O.T.R., Director of O. T.*

Minnesota, University of, School of Medical Sciences, Minneapolis, Minn. *Assoc. Prof. Borghild Hansen, O.T.R., Director of O.T.*

Mount Mary College, Milwaukee 10, Wis. *Mrs. Margaret Mirenda, O.T.R., Acting Director of O.T.*

New Hampshire, University of, College of Liberal Arts, Durham, N. H. *Miss Ruth McDonald, O.T.R., Supervisor of O.T.*

New York University, School of Education, Washington Square New York 3, N. Y. *Assoc. Prof. Frieda Behlen, O.T.R., Director of O.T.*

North Dakota, University of, Grand Forks, N. D. *Asst. Prof. Amy Lind, O.T.R., Director of O.T.*

Ohio State University, College of Education, Columbus 10, Ohio. *Miss Barbara Locher, O.T.R., Chairman, O.T. Dept.*

Pennsylvania, University of, School of Auxiliary Medical Services, 419 South 19th Street, Philadelphia 46, Pa. *Prof. Helen S. Willard, O.T.R., Director.*

Puerto Rico, University of, School of Physical and Occupational Therapy, Professional Bldg., Santurce, Puerto Rico. *Miss Sylvia Rodriquez Arte, O.T.R. Acting Senior Supervisor in O.T.*

Puget Sound, College of, Tacoma 6, Wash. *Asst. Prof. Shirley Bowing, O.T.R., Director, School of O.T.*

Richmond Professional Institute, College of William and Mary, Richmond 20, Va. *Miss H. Elizabeth Messick, O.T.R., Director of O.T.*

Saint Catherine, College of, St. Paul 1, Minn. *Sister Jeanne Marie, O.T.R., Director of O.T.*

San Jose State College, San Jose 14, Calif. *Asst. Prof. Mary Booth, O.T.R., Director of O.T.*

Southern California, University of, College of Letters, Arts and Science, Box 274, Los Angeles 7, Calif. *Assoc. Prof. Angeline Howard, O.T.R., Director of O.T.*

Texas State College for Women, Dept. of Arts, Denton, Texas. *Assoc. Prof. Rena Worthington, O.T.R., Director, School of O.T.*

Texas University of, Medical Branch, Galveston, Texas. *Miss Rose Marie Wells, O.T.R., Director of O.T.*

Washington University, School of Medicine, 4567 Scott Ave., St. Louis 10, Mo. *Asst. Prof. Martha Matthews, O.T.R., Director, Dept. O.T.*

Wayne State University, College of Liberal Arts and College of Education, Detroit 1, Michigan. *Asst. Prof. Barbara Jewett, O.T.R., Director of O.T.*

Wisconsin, University of, School of Medicine, 1300 University Ave., Madison 6, Wis. *Asst. Prof. Caroline G. Thompson, O.T.R., Director of O.T.*

Awaiting accreditation:

Indiana University, College of Medicine, 1200 West Michigan Street, Indianapolis 7, Ind.

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